

# THE AUTOMOBILE

## Protecting the Automobile Public Automobile Insurance Has Developed Along with the Industry and Is To-day as Important as Any Accessory Carried

An Exposition of Facts Relating to Insurance in General and the Automobile Underwriters' Conference  
in Particular, with a Review of the Various Policies in Force

### Part I



*What do you know about the insurance which you are carrying on your car? Is it perfectly clear in your mind just what protection you are paying for? If your car were damaged in a collision, could you look to an insurance company for payment of the repair costs? If you had an expensive fur robe stolen from the car, would your insurance policy cover the loss? Out of the 600,000 automobile owners in the United States, one-quarter cannot answer these questions without referring to their policies. They have never examined them closely. For these owners, and all others interested in insurance, this article contains a fund of valuable information. The puzzling clauses and confusing insurance terms have been reduced to simple language, and rates have been enumerated. Part II appears next week.*



**E**IGHTY per cent. of the automobiles owned in the United States are insured. Three-quarters of the great army of car owners know what protection they are getting in exchange for their money. The other quarter does not know. That is, 150,000 people who own cars have never taken the trouble to examine the automobile insurance policies which they hold. They can not tell you without reference to those policies just what their scope is. Raise any number of hypothetical causes of loss or damage and they cannot answer definitely.

**Know your insurance policy.** Take it out of its secluded corner and study it. It is a contract between yourself and the insurance company whose name it bears, and being a contract, you should be familiar with all its provisions, its shortcomings and its limitations. If you do not know these things, how can you be in a position to take full advantage of the protection for which you are paying?

Here is an illustration to point the moral: A man left his car standing at the curb in a busy street in the down-town district of a big city and went into a large office building. In the front seat was an expensive fur overcoat. When he emerged from the building, the coat was gone. He immediately notified the insurance company of the loss. It replied that it could not assume responsibility for the theft, since his policy specifically stated that among other things automobile coats were excepted from the liabilities of the company under the policy's terms. Much incensed, the owner dug up the policy and found to his

chagrin that the clause referred to was near the beginning of the document.

And he had been carelessly leaving valuables in the car unprotected ever since he had purchased it and applied the insurance policy to it, thinking the underwriters responsible for any loss sustained! Since then he has carefully studied every clause.

Insurance is essential to every owner of an automobile. It is just as necessary as the horn or the warning signal, for as they are safeguards against the running-down of pedestrians and slower-moving vehicles, so the insurance policy is monetary protection against losses by fire, theft, collision or transportation.

To the 20 per cent. of uninsured automobilists, we say, consider the companies which are writing this class of insurance, decide upon the one which you consider the best and take out policies which will undoubtedly save you money in the end. You are operating vehicles of a more or less hazardous nature and you should in all cases make it a point to nullify as best you can the effects of fires which occur when least expected, the losses by theft, the damages caused by collisions which are often unavoidable. Insurance is the only implement at your command and you should familiarize yourself with it.

There are two classes of insurance policies which deal with the automobile. The first covers theft, collision and fire, and, the second, or casualty form, protects against loss by personal injuries to others for which the maintenance, ownership or use of an automobile is responsible. The former policy is drafted along the general



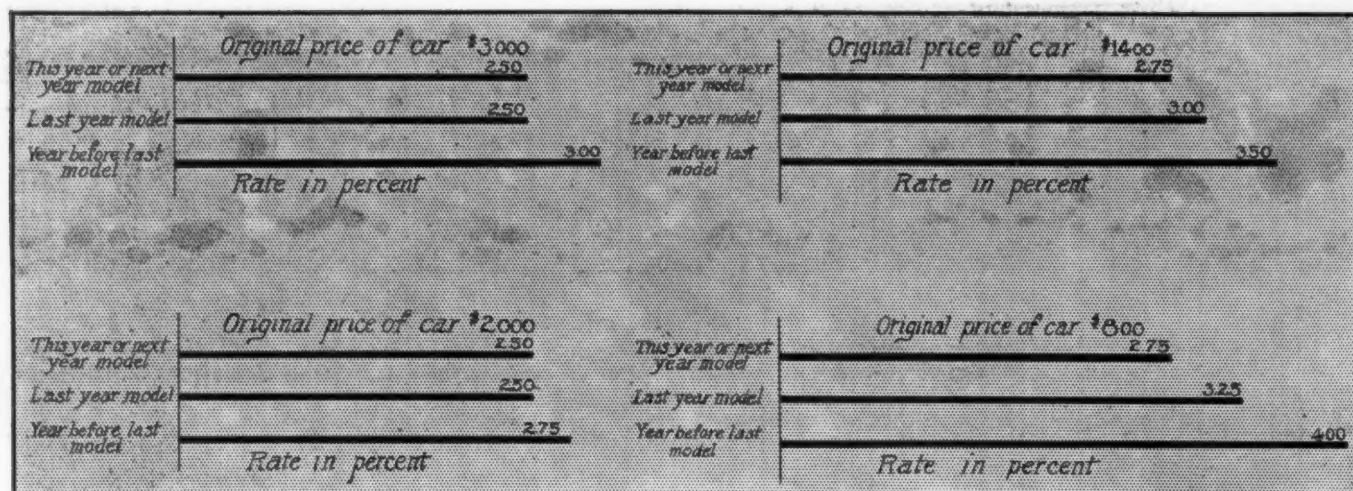


Fig. 1—Charts showing how the rates vary with the car ages when insured to the maximum by conference policies

lines of an inland marine form, whereas the latter is purely liability insurance.

Fire and marine insurance companies write the first-named class of policies and are not authorized to write liability insurance. It is written exclusively by casualty companies. The fields of these two classes of underwriting overlap somewhat. The fire and marine organizations can write policies covering fire, transportation, theft, collision and property damage. The casualty company is permitted to insure against liability, theft, collision and property damage. Coverage against theft, collision and property damage is seen to be common to both.

To be covered, then, against all contingencies, the automobile owner must have two policies, one a fire and theft form and the other a protection against loss through personal injury to others. In addition to these, personal accident insurance may be carried.

Since fire is one of the greatest dangers to which the automobile is subjected, most owners carry fire and theft policies at least, and it is recognized as the standard motor car insurance contract. The liability policies are looked upon as secondary protection, and are not so generally carried.

### The Conference Policy

The most common fire and theft automobile policy is designated as the "Conference form." This is used by all the insurance companies in the Automobile Underwriters' Conference, an association formed in June, 1911, and which has taken the place of the older Association of Automobile Underwriters. Since the majority of the underwriters of automobile insurance are members of this conference, a brief consideration of its objects, methods and jurisdiction over its members is necessary for a comprehensive understanding of the standard policy.

There are at present thirty-seven companies affiliated with the Automobile Underwriters' Conference, and all companies writing automobile insurance in the United States and Canada are eligible for membership. The organization is entirely composed of companies which have fire and marine charters, and which may be said to be representative in their field. Outside the conference there are perhaps a dozen companies writing automobile policies.

The objects of this conference, as set forth in its constitution, are as follows:

1. To serve as a medium of exchange of information.
2. To secure the adoption of suitable and uniform policy forms and clauses.
3. To make investigations and recommendations with the object of eliminating or reducing danger of fire and other casualties.
4. To gather statistics and make investigations concerning hazards as a guide to underwriting by its members.
5. To furnish advisory rates of premiums to its members covering general or special classes of business or individual risks, whenever such rates are not prohibited by law.
6. To prevent the making of rebates.

In accordance with these objects a schedule of list prices of all automobiles as a basis for insurance rates has been adopted as standard and is now in force. The makers' prices are accepted.

Members are also required to use the conference policy forms as well as such necessary riders, clauses or forms of indorsement as may be sanctioned or prescribed by the organization. In laying down these rules for its members, however, the conference has provided that in case any of its stipulations if enforced would violate the laws of the state in which any member is located, then the requirements will be waived and will be considered non-binding on such member.

The conference has divided the country into six territorial districts as follows:

New England Department.	Western Department.
Middle Department.	Southeastern Department.
New York Metropolitan District.	Pacific Coast Department.

This was done for convenience in the supervising of the conduct of its members, their agents and brokers.

The units of the divisions are the states of the union, with the exception of the New York Metropolitan District, which is composed of Long Island, New York, Westchester, Richmond and Rockland Counties in New York State, and Bergen, Passaic, Essex, Union and Hudson Counties in New Jersey.

The maximum number of general agents, local agents and sub-agents which is allowed each company in any one city, town or state is set down in the rules. Rebating by the members or their agents is prohibited, the penalty imposed upon any agent found guilty of rebating being the termination of his agency.

The maximum commissions to be paid to agents and brokers are also set down in the rules. Agents and brokers are allowed the highest percentages in the New York Metropolitan District, where competition is greatest, and the least in the Southeastern Department, where the field is least crowded. However, agents and brokers in the cities of Atlanta, Savannah and New Orleans, which are in the latter territory, are permitted commissions equal to those given in the four other departments enumerated.

With such a binding, powerful and far-reaching association back of the automobile underwriters, it is easily seen that one company in the conference cannot do better by the assured than can another. Riders and endorsements, and even the policy forms themselves, are identical, and if you have studied the policy issued by one company, you have studied them all. The only difference will be in the name. The rates which one company can make are no better than those of its thirty-six competitors. Any protection which one underwriter can offer, all the others can give, and at the same cost. There is some satisfaction to the car owner in this phase of the insurance game. When he takes out a fire and theft policy with any conference company he can be sure that he is getting as low a rate as anyone else.

Members of the conference are not troubled much by competition from outside insuring companies, the latter quite uniformly adhering to the conference rate schedules. Several years ago the foreign Lloyds was a disturbing factor in the Middle

West, but an agreement between its representatives and a conference committee has been finally reached whereby the Lloyds are to use the conference rate schedule. A similar agreement has also been reached with the casualty companies as to collision and property damage rates.\*

The standard automobile fire and theft policy covers the body, machinery and equipment of the car. Extra bodies, robes, automobile coats, hats, caps, gloves, leggings, boots, goggles and chauffeurs' livery are not included unless specially provided for under a separate and supplementary clause.

As already stated, the policy is formulated along the general lines of the inland marine form. Insurance on the car is not like that on a house. The car is not stationary and the policy covers it while within the limits of the United States (exclusive of Alaska, Hawaiian Islands and Porto Rico) and Canada. In some cases the restriction is more than this, however.

The more important stipulations and conditions of the policy are given below:

The policy insures against actual loss or damage:—

1. By fire arising from any cause whatsoever, including explosion, self-ignition and lightning.
2. While on board railroad car caused by derailment of the car or collision of the railroad car with another railroad car.
3. While on board steamer caused by stranding, sinking, burning or collision with another vessel, including general average and salvage charges.
4. If amounting to \$25.00, on each occasion, by theft, robbery or pilferage by persons other than those in the employment, service, or household of the insured.
7. It is warranted by the insured that no other insurance covering against the risks insured by the policy will be carried on property insured.
9. It is warranted by the insured that the automobile insured during the term of the policy shall not be used for carrying passengers for compensation, and that it shall not be rented or leased.
11. In the event of violation of any warranty the policy immediately becomes null and void.
12. In ascertaining the amount of any partial loss or damage, only the cost of repairing or, if necessary, replacing the parts damaged or destroyed, including the charges incidental thereto, is considered.
13. In the event of loss or damage to said automobile, whether said loss or damage be covered by the policy or not, the liability of the insuring company is reduced proportionately by the amount of such loss or damage until repairs have been completed; but then attached for the full amount as originally written, without additional premium.
16. In the event of any warehouseman, carrier, bailee or other corporation or person assuming any insurance risk (or procuring insurance to be effected) in respect of the automobile insured, such protection is to its full extent deemed insurance prior to this insurance.
17. Failure to file with the insuring company proof of loss within sixty days of the date of loss invalidates any claim of the policy.
19. The interest of the insured in the policy, or any part thereof, or in the property insured, or any part thereof, is not assignable, unless by consent of the company manifested in writing, and in case of transfer or termination of any such interest of the insured, or any change of the nature of the insurable interest of the insured in the property aforesaid, either by sale or otherwise, without such consent, the policy is from thenceforth void and of no effect.
20. The policy is void if the insured has concealed or misrepresented, in writing or otherwise, any material fact or circumstance concerning the insurance or the subject thereof; or if the interest of the insured is other than unconditional and sole ownership, or if the subject of the insurance is or will be encumbered by any lien or mortgage, or in case of any fraud or false swearing by the insured touching any matter relating to the insurance or the subject thereof, whether before or after the loss or damage.
24. The said automobile insured (body, machinery and equipment), is by agreement of the company and the insured, valued at the sum insured.

There are a number of other clauses of lesser importance which appear in the policy, and which should be well understood by the insured nevertheless.

The fire and transportation clauses are self-explanatory. Clause No. 4, relating to theft, should be carefully perused. It provides against theft, robbery or pilferage by persons other than those in the employment, service or household of the insured. No rider can be had which will protect the property against theft by any of the latter. The insuring companies hold that this could be and is too easily done to be considered a reasonable risk. The \$25 minimum feature is used as a safeguard against claims for petty damages, such as losses of tools, oil cans and other

equipment of small value. If such claims were allowed the companies would be constantly paying small amounts which would necessitate an unwarranted amount of bookkeeping and the like.

Clause 7 simply means that only one policy can be carried on any one machine, and that it cannot be insured by several companies to cover the risk at the same time.

The policy does not admit the holder to carry passengers for hire, to rent the car or lease it, according to clause 9. If the owner desires to use it for these purposes he must pay an increased premium. A rider waiving the clause is then attached.

Conditions Nos. 11 and 12 require no special comment.

No. 13 states that the insurance company's liability on the automobile is decreased by any loss or damage in proportion to such loss or damage until repairs have been completed and losses replaced. It then applies to the full amount as written. For instance: If a certain machine valued at \$1,500 and insured for this amount is damaged in a collision to the extent of \$200, then the company's liability in the event of its being consumed in a fire or ruined while being shipped to a point where repairs are to be made is \$1,300. As soon as these repairs have been made, however, the liability reverts to the original \$1,500 again.

Condition No. 16 prevents the insured owner of a car from recovering from more than one source if his car is damaged or destroyed while in the custody of any carrier, storage concern or any other person. That is, if the owner has his car stored in any warehouse and the building is destroyed, and if the owner of such building has insurance covering all property contained in it, then if insurance is paid to the warehouse owner who, in turn, reimburses the car owner for his loss, the latter cannot recover from the insurance company on his automobile policy.

Clause No. 24 is called the valued policy clause. The insurance company agrees to accept the value of the insured property as stated in the policy, and if there is loss or damage the adjustment is made upon the basis of this agreed value. This means that if, for example, a car valued at \$3,000 and which by reason of its age has in reality a much lower cash value, sustains a loss of \$100 the adjustment is made on the basis of the \$3,000 and not with regard to the actual market value of the car. The reason for this is that in replacing broken parts, new ones must be put in, the value of which is the same as if they were put into a new car. The insured here has a distinct advantage.

### Standard Riders Used

Various clauses may be added or eliminated from the policy by the use of the standard riders, or endorsements, already referred to. The term rider is given to these endorsements per-

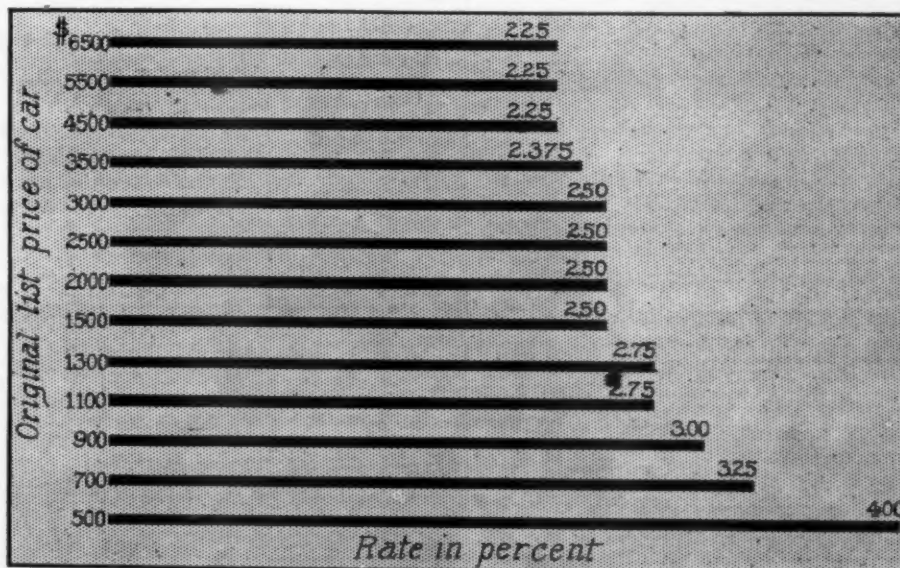


Fig. 2—Showing increase in rate with price decrease. Insurance in each case for 80 per cent. of original list price on "this year" models

\*New York State Report.

haps from the manner in which they are used. They are simply blank forms which after being properly filled in and signed are pasted to the body of the policy. They are then considered as an integral part of the agreement.

The substance of the rider permitting the carrying of passengers and which annuls clause No. 9 of the policy is as follows:

#### Passenger Privilege Clause

In consideration of \$.....additional premium, permission is hereby granted for the automobile herein insured to be used for carrying passengers for compensation, provided it is under the personal supervision and guidance of the insured or a chauffeur in his employ while being so used.

The rider which is used when the policy is to cover personal effects contrary to the stipulation against them in the standard form reads as follows:

#### Personal Effects Clause

In consideration of \$.....additional premium, this policy shall cover an additional \$....., which shall apply only on robes, automobile coats, hats, caps, gloves, leggings, boots and goggles, including chauffeur's livery, the property of the assured and / or the assured's immediate family and used exclusively by the assured and / or the assured's immediate family and / or chauffeur in connection with the automobile insured hereunder, while in or on the said automobile or while in any garage or in any other building used for housing of said automobile. Warranted free from claim for loss or damage caused by theft, robbery or pilferage.

When the owner has several bodies for the same chassis, and wishes to have them all covered under the policy, the rider used reads:

#### Extra Bodies Clause

It is hereby understood and agreed that for the purposes of this insurance the automobile bodies, chassis and equipment are covered as follows:

Chassis and equipment.	\$.....
Touring body	\$.....
Limousine body	\$.....
Runabout body	\$.....

Policies may be extended to cover a European trip according to the wording of the following rider:

#### European Privilege Clause

In consideration of \$.....additional premium, this policy is extended to cover, subject to its terms and conditions, the automobile insured hereunder while in the United Kingdom of Great Britain and Ireland and Continent of Europe, also while being transported by land or water within these limits, including the risk of one trip by regular line steamer from an Atlantic United States port to a port in the United Kingdom of Great Britain and Ireland or on the Continent of Europe not north of Hamburg; also the return trip by regular line steamer from a port in the United Kingdom of Great Britain and Ireland or Continent of Europe not north of Hamburg to an Atlantic United States port, provided such return trip is completed during the currency of this policy. Also to cover while on board regular line steamer between ports in the United Kingdom of Great Britain and Ireland and the Continent of Europe not north of Hamburg.

The theft and valued policy clauses (Nos. 4 and 24, respectively) may be eliminated either singly or in combination, a reduction in rates being the reason for so doing. These two read as follows:

#### Valued Policy Clause (Section 24)

In consideration of the rate at which this policy is written, Section No. 24 of this policy is hereby made void and of no effect.

#### Theft and Valued Policy Clauses (Sections 4 and 24)

In consideration of the reduced rate of premium at which this policy is written, it is understood and agreed between the assured and this company that clauses numbered 4 and 24 of the Stipulations, Conditions and Warranties, reading:

4—Against actual loss or damage if amounting to \$25 on each occasion, by theft, robbery or pilferage by persons other than those in the employment, service or household of the insured.

24—The said automobile hereby insured (body, machinery and equipment) is by agreement of this company and the insured, valued at the sum hereby insured, are expunged from this policy.

When it is desired to extend the policy so as to cover damage to the automobile caused by collision with any other automobile vehicle, or object, or to protect against claims for loss or damage to others by reason of the collision of the insured car with any other vehicle or object, the rider used usually reads as follows:

#### Collision Clauses, Including "Damage to Property" Clause

Covering "damage to property," without deduction, and damage sustained in excess of \$25 (deductible).

(a) This policy also covers sums which the assured become liable to pay for damage to property (excepting to the property of others while in charge of the assured or of the assured's employees) or for legal expenses incurred with the consent of this company in connection therewith through collision of the automobile herein described with any other automobile, vehicle or object, either moving or stationary, during the period insured. This company shall not in any event be liable under this provision for more than the actual value of the property destroyed at the time of its destruction or the actual cost of the suitable repair of the property injured, or for a greater sum than \$..... in respect of this provision on account of any one collision.

(b) Subject to its other conditions this policy also covers damage to the automobile and / or equipment herein described in excess of \$25 (each accident being deemed a separate claim and said sum being deducted from the amount of each claim when determined) by being in collision during the period insured with any other automobile, vehicle or object, excluding (1) damage or loss to tires (unless the total damage caused by the collision to the automobile herein described exceeds the sum of \$200), (2) damage caused by striking any portion of the roadbed or by striking the rails or ties of street, steam or electric railroads.

The insurance under provisions (a) and (b) of this clause does not attach or cover while the automobile herein described is being operated in any race or speed contest or while being operated by any person under the age of sixteen years or under the age limit fixed by law.

By the terms of this rider it will be seen that the insurance company is liable only for the loss or damage to the insured car in excess of \$25. That is, if the claim amounts to \$45, the insured can recover from the company only \$20. If the claim amounts to \$500, he receives \$475, and so on. Should the loss amount to only \$25 there is no recovery. The deductible clause does not include tires unless the total damage amounts to \$200. If the total amount of damage sustained is \$175 and part of it is tire damage, there is no reimbursement for the tire loss. On the other hand, if there is \$800 or more damage, the loss on tires is allowed.

#### The "Full Coverage" Clause

Another collision rider covering damage sustained is known as the full coverage clause. This takes a higher premium and there is no \$25 deductible average. Tire damage is excluded unless the total damage exceeds \$200, however.

It will be noted that insurance under the provisions of these collision clauses is annulled while the machine is being used in a race or while driven by a person under 16 years of age or under the age set down by law.

The schedule of rates now in force and which applies to the standard conference policy to cover fire, transportation and theft is given in Fig. 3.

These are annual rates, the highest being 4 1-4 per cent. and the lowest 2 1-4 per cent. In ascertaining the rate on a car the following table, which applies to New York State in particular, refers to the schedule, is necessary:

AMOUNT FOR INSURANCE	Original List Price of Automobile, when New (Not Second Hand), Excluding Cost of Additional Equipment and Extra Bodies.														
	6500 to Up	5500 to 6499	4500 to 5499	3500 to 4499	3000 to 3499	2500 to 2999	2000 to 2499	1500 to 1999	1300 to 1499	1100 to 1299	900 to 1099	700 to 899	500 to 699		
	A	B	C	D	E	F	G	H	J	K	L	M	O		
6500 and Up	2 1/4														
5500 to 6499	2 1/4	2 1/4													
4500 to 5499	2 1/4	2 1/4	2 1/4												
3500 to 4499	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4										
3250 to 3499	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4									
3000 to 3249	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4								
2750 to 2999	3	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4							
2500 to 2749	3 1/4	3	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4							
2250 to 2499	3 1/4	3 1/4	3	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4							
2000 to 2249	4	3 1/4	3 1/4	3	2 1/4	2 1/4	2 1/4	2 1/4							
1750 to 1999		4	3 1/4	3 1/4	3	2 1/4	2 1/4	2 1/4	2 1/4						
1400 to 1749		4 1/4	4	3 1/4	3 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4					
1200 to 1399			4 1/4	4	3 1/4	3	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4				
1000 to 1199				4 1/4	4	3 1/4	3	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4			
800 to 999					4 1/4	3 1/4	3 1/4	3	3	2 1/4	2 1/4	2 1/4	2 1/4		
600 to 799						4 1/4	4	3 1/4	3 1/4	3	3	2 1/4	2 1/4	2 1/4	
500 to 599							4 1/4	4	4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	
400 to 499								4 1/4	4 1/4	4	4	4	4	4	4

Fig. 3—The Rate schedule now used by the Automobile Underwriters' Conference

Columns A, B, C and D	
Next year.....	Models for not less than 50% of original list price.
This year.....	
Columns E, F, G and H	
Next year.....	Models for not less than 50% of original list price.
This year.....	Models for not more than 70% of original list price.
Last year.....	Models for not more than 80% of original list price.
Year before last.....	Models for not more than 60% of original list price.
Columns J, K, L, M and O	
Next year.....	Models for not less than 50% of original list price.
This year.....	Models for not more than 70% of original list price.
Last year.....	Models for not more than 80% of original list price.
Year before last.....	Models for not more than 50% of original list price.

This is called the limit table. Similarly arranged tables are used in other localities, the percentages varying somewhat.

The agent is not allowed to write a policy in excess of the value of the car nor more or less than the limits set.

To find the rate which applies, the vertical column is found which contains the original list price of the car, not including additional equipment and extra bodies. This is followed down until opposite the amount in the column at the left, which corresponds with the amount of insurance desired.

For example: Take a car which is a "this year" model, original list price, \$1,600. The owner desires \$1,500 insurance on it. By referring to Fig. 3 this price is found to come within the limits of vertical column H. Now pass to the limit table. Under the proper head it will be found that the car cannot be insured for less than 50 per cent. of its original list price. Fifty per cent. would be \$800, so the desired amount of \$1,500 is acceptable. Next run down column H of Fig. 3 until opposite the horizontal column which contains the amount of insurance of \$1,500 (\$1,400 to \$1,749). At the point of coincidence the rate applying will be found to be 2 1-2 per cent.

Assume a "year before last" car, the original price of which was \$3,000. The applicant for insurance wants to cover it to the maximum allowable amount. Referring to the schedule, Fig. 3, column E will be found to contain the list price of \$3,000. Next refer to the limit table. It will be seen that the car cannot be insured for more than 60 per cent. of its original list price, or \$1,800. Now go back to the rate schedule, find column E again, run down it until opposite the horizontal column which contains the \$1,800 figure (\$1,750 to \$1,999). The rate will be found to be 3 per cent.

Extra equipment or extra bodies do not take the car out of the column indicated by the price list. That is, if the list price is \$1,800 with touring body, and another body worth \$250 is also owned, the \$1,800, column H, still applies and not the column in which the total, or \$2,050, would be found (G).

The rates given apply exclusively to gasoline pleasure cars and commercial cars.

Electrics have a flat rate of 2 per cent. for all models.

Steam automobiles of "next year" and "this year" models take a rate which is not less than 3 per cent. The rate on "last year" models is not less than 3 1-2 per cent. If the boiler and burner are located in front of the dashboard a reduction of 1-4 per cent. is allowed from these rates.

In fixing the original list price of an automobile having more than one body the sum of the cost of the chassis and the highest priced body are taken as the basis for insurance for the purpose of arriving at the rate to be charged.

For example: If the car has a chassis valued at \$4,000, and if there is a limousine body valued at \$1,800 and a touring car body valued at \$1,200, the original list price will be taken as \$5,800 and not \$5,200.

#### Body Apportionment Feature

No change in the classification of the car is permitted during the life of the policy. When the car is equipped with several bodies a specific amount must be apportioned to the chassis, to the equipment and to each body, the same rate being charged on the extra body as is charged on the automobile. See the extra body rider which has already been referred to on page 966.

Policies on models which are three seasons older than "this year" cars, that is, 1908 models in 1911, 1909 models in 1912, 1910 models in 1913, and so on, take rates which are 1-4 per cent.

higher than those listed in the schedule of rates in columns H to O inclusive. Policies on automobiles of this age will not be issued for amounts in excess of 40 per cent. of the original list price, except on cars listed under columns A, B, C and D. The amounts for cars in this last category are insured to amounts fixed at the discretion of the insuring company.

It is difficult to obtain insurance on cars 3 years of age or older, the companies believing them to be too great a risk in the average case. However, they are sometimes insured, but at an advance in rates.

The underwriters refuse to insure cars to which any of the following conditions apply:

- Cars in litigation or dispute.
- Cars on which there is a mortgage or lien of any kind.
- Cars permanently out of commission, whether in good order or not.
- Cars purchased on installment plan, unless fully paid for at time insurance is effected.
- Cars used for racing purposes.
- Cars no longer manufactured.
- Sightseeing cars.

As to the influence of the various riders which have been mentioned on the rates as set down in the schedule, Fig. 3, the following table applies:

Clause or rider.	Add.	Deduct.
Passenger endorsement .....	1-2 per cent.	
European trip privilege .....	1-2 per cent.	
Elimination of value clause (24).....		1-4 per cent.
Elimination of theft and valued clauses (4 and 24).....	"This year" and "Next year" models.....	3-4 per cent.
	Other models.....	1-4 per cent.

The minimum rate on the gasoline car is 2 per cent. in any case. That is, no matter what deductions are made, no policy will be issued at a rate less than this figure.

Extra bodies are insured at the same rate as that which applies on the automobile. This is also true of the special amount which is carried as coverage against loss of personal effects. That is, if the rate on the car is 3 per cent., and personal effects are insured to the amount of \$300, then the rate on this is also 3 per cent., of \$9 a year.

For the purpose of collision insurance, private cars have been specially rated according to manufacture, list price and model. As already brought out, there are two forms of collision riders covering damage sustained, the \$25 deductible average and the full-coverage clauses. Rates for this class of insurance are made regardless of the actual value of the car or the age. They are flat rates purely. The full-coverage clause costs \$35 more than the \$25 deductible average clause in any case.

A partial list of these rates is given below:

	\$25 deductible average	Full coverage
A.....	\$28.00	\$63.00
B.....	32.00	67.00
C.....	36.00	71.00
X.....	180.00	215.00
Y.....	190.00	225.00
Z.....	200.00	23.500

The letters A, B, C, and so on, at the left refer to the classes into which the automobiles have been divided according to manufacture, list price and model.

As to rates for insurance against damage to property, that is, collision where damage is done by the car and where its owner becomes liable for damages by law, the rates are based on the horsepower of the machine. There are three schedules in connection with this insurance:

- Schedule 1—Certain districts in and around New York, Chicago, St. Louis and Kansas City.
- Schedule 2—Certain districts in and around Boston, Philadelphia, Providence and Pittsburgh.
- Schedule 3—All other territory in the United States.

The rates given below apply to \$1,000 of insurance. Each additional \$1,000 is charged for by an additional premium rate of 40 per cent. of the schedule rate.

	16 horsepower.	60 horsepower
Schedule 1 .....	\$10	\$26.50
Schedule 2 .....	10	22.50
Schedule 3 .....	10	20.75

The limiting horsepowers are here given. Horsepowers between these extremes are charged for at proportionate rates.

The principal features of the liability insurance policy, its scope, rates and special clauses will be taken up in detail in THE AUTOMOBILE of next week.

## Legal News of the Week

### Amended Bill of Particulars Ordered in Williams vs. Lozier—Duplex Company in Receiver's Hands

#### Stockholder Wants to See Company's Books—Demurrer in Rose vs. Grossman

AFTER delays, which have carried the case along in the New York Supreme Court for months, an order has been issued by Justice Hendrick requiring an amended bill of particulars to be filed in the suit of Fletcher R. Williams against Harry A. Lozier and the Lozier Motor Company. The suit is for \$500,000 damages based upon an alleged contract of financing the Lozier company's plant by Williams and several Cincinnati capitalists prior to the removal of the factory from Plattsburg, N. Y., to Detroit.

The claim is made that after the deal had been completed with Williams and his party, through the instrumentality of Joseph L. Rhinock, a former Kentucky congressman, Lozier rejected the proposal and moved to Detroit.

The suit was entered on behalf of Rhinock and Williams to recover the amount they charge was the measure of their damages. The defense moved for more particulars to define the limits of the complaint and the plaintiff filed such a bill in both cases. The attorney for the defense then asked for more and more definite particulars, and the court has ordered such action to be taken.

The court itself took a hand in defining what the new bill of particulars should contain and specified that the particulars of the visit to the Plattsburg plant by the plaintiff shall be set out. Also, whether the tender of the amount of additional capital to furnished by the plaintiff was in the form of a check or cash, and likewise what other officers besides Mr. Lozier refused to accept the tender.

Attorneys for both sides state that several months will probably elapse before the case comes up for trial.

#### Receiver Appointed for Duplex

CHARLOTTE, MICH., April 20—Circuit Judge Smith has granted the motion of the complainants in the Duplex Power Car Company case for a receiver, and has appointed Frank P. Town to that position. In regard to the matter Mr. Town makes the following statement:

"The appointment of myself as receiver takes effect immediately. As soon as the financial condition of the company can be fully determined I will take steps to conduct the business in such a manner as to best serve all parties concerned. I can put men to work to complete the cars now in the factory and to sell the cars. There are fourteen large cars and eleven small cars completed, besides two small cars in course of construction. I cannot say whether the business will be continued or closed up, but whatever is done will be in the interest of what I consider a square deal to all."

#### Wants to See Company's Books

PONTIAC, MICH., April 20—Fred H. Yeomans, of Detroit, who says he owns 4,107 shares of the capital stock of the Monroe Body Company, has petitioned the Circuit Court for a mandamus to compel John Parker, secretary and general manager of the company, to allow him to make an examination of the books of the company. Judge Smith has signed an order requiring Mr. Parker to show cause on April 29 why he should not allow Mr. Yeomans

to inspect the books. In his petition Mr. Yeomans alleged that, although the fiscal year of the company closed August 1, 1911, no financial statement for that year has been issued and no annual meeting of the stockholders has been held. He also charges that no dividends have been paid in the last year. His stock, he says, is worth \$41,700.

#### Say Garage Odors Damage Property

TORONTO, CAN., April 20—One of the most novel suits involving the automobile has been entered against the Dominion Automobile Company, Toronto, by the Continental Life Insurance Company, whose premises are located immediately north of the motor emporium. The claim is that the smoke and vapors arising from the garage are damaging the premises of the insurance company, and an injunction restraining the defendants from the alleged nuisance to continue has been asked for.

#### Demurrer in Rose vs. Grossman

PHILADELPHIA, April 22—Things are beginning to move in the series of suits brought within the past year on behalf of the Rose Manufacturing Company against several alleged infringers of its patents. The suits have been dragging in the United States

## Sustains Wire-Wheel Patent

### German Court Upholds J. S. Napier as Against Rudge-Whitworth

UNDER a decision of the German court the J. S. Napier patent covering wire wheels has been sustained in that country. The defendants, the Rudge-Whitworth company of England, and a German concern handling the imported goods have been ordered to stop manufacturing and selling infringing wheels in Germany; decreeing an accounting between the parties to the suit for business done since January 4 of this year; adjudging three-fourths of the costs against the defendants and ordering them to put up a bond of \$1,875.

The defense gave notice of appeal and the announcement has been made that a correlated action for revocation of the patent in question in Germany will be taken.

The Rudge-Whitworth company, manufacturers of the wire wheel declared to be an infringement of the J. S. Napier patent by the German court, in which action was brought recently, explains in an official announcement that the publication of the bare facts are likely to prove misleading to the trade. The suit was brought as published and the decision was rendered in accordance with the accounts that have appeared, but, according to the company, the validity of the patent itself under German procedure was not at issue and as the wheels upon which the ruling was made were manufactured under the Napier patent, the company was not surprised that the court held them to infringe.

The merits of the case will be threshed out in an action in nullity which has been brought before the Patent Office Court.

#### Receiver for Capital Agents

WASHINGTON, D. C., April 20—Harold N. DeWitt has been appointed receiver of the Pope Automobile Company, agents for the Pope-Hartford, Marathon and Columbus electric. His bond was fixed at \$10,000. The equity court has issued a rule, returnable May 22, calling on the company to show cause why the application of John H. Nolan, the principal stockholder, for the dissolution of the company, should not be granted.

District Court and this week an order was entered by Judge Mayer paving the way to take up a demurrer filed on behalf of Emil Grossman, who figures as technical defendant in one of the suits involving a license bracket patent.

C. C. Gill, attorney for the defense, states that there is a strong probability of action in this suit after the motion on the demurrer is disposed of. If the demurrer is overthrown and answer filed, the ordinary course of the case would bring it to a hearing by mid-Fall.

### Pittsburgh Krupp Cannot Use Name

Under the decree of the United States District Court an injunction has been issued forbidding the Krupp Motors Company, of Pittsburgh, Pa., from using the name Krupp in connection with its business. The defense failed to answer the suit filed on behalf of the Essen, Germany, concern and the injunction was granted.

In its form it is temporary, but in the event of no further defense to the action, it will become permanent. The complainant alleged that the Pittsburgh company had no right to use the name Krupp because it had nobody connected with it by that name and did not use the product of the Krupp company. It was alleged that the similarity of names might lead to some confusion in the trade.



## Hartford Sues Supply Men

### Asks Accounting and Injunction Against Sellers of Foster Device

SUIT for infringement, accounting and an injunction has been filed in United States District Court by the Hartford Suspension Company against Hoyt & De Mallie, Inc., a garage and supply house in New York, for alleged infringement of Truffault reissue patent No. 12,437.

This is one of the patents that was involved in the recent suit of the Hartford company against the Westen Manufacturing Company, in which a permanent injunction was issued against the infringers.

The particular device mentioned in the complaint is not made by the defendant company, it being the Foster shock absorber.

The defense has until the June rule day to file its appearance and the answer will probably be due just before vacation.

### No Bids for Plant in Receivership

LOUISVILLE, KY., April 20—This was the day fixed by the Floyd Circuit Court in New Albany for the sale of the plant of the American Automobile Manufacturing Company in Vincennes street, in that city, but the New Albany Trust Company, the receiver for the company, reported to the court that no bids had been received.

H. E. Jewett, of the New Albany Trust Company, stated however, that the newly organized company, known as the American Automobile Corporation, which includes a number of the members of the old company, and was organized to take over the plant of the old concern, was arranging for a settlement with the creditors of the old company with a view of taking over the plant. Mr. Jewett stated that the indebtedness of the company is between \$28,000 and \$30,000.

BUFFALO, N. Y., April 24—Robert McKay Oliver, the Ottawa, Ont. man who recently purchased for \$750 a low-bodied runabout from the Frontier Motor Car Company, 1114 Main street, was ordered deported to Canada by immigration authorities here on Saturday. He tendered a bogus check in payment.

## Remedying Patent Law

### Manufacturers and Inventors Interested in Oldfield and Brown Bills, the Latter Now on Third Reading

#### Measure Introduced in House to Secure Reciprocity in Patent Issuance

WASHINGTON, D. C., April 22—Two bills before Congress covering the situation as to patent legislation were introduced April 11 and about them most of the real interest of the patent bar, manufacturers and inventors of the United States is centered. These measures are designated as H. R. 23,193 and S. 6,273. The first is fathered by Representative Oldfield, chairman of the Committee on Patents in the House, and the other by Senator Brown.

The bills provide for the separate installation of the Patent Office, which heretofore has been a bureau of the Department of the Interior. They designate the makeup of the office as a Commissioner of Patents, First Assistant Commissioner and Assistant Commissioner and 1,029 other officers and clerks, including forty-three principal examiners. They define the duties of all in a general way and provide that no member of the office shall be interested in any patent issued except by way of inheritance or bequest. The Commissioner and his assistants with the examiners in chief shall constitute a board of appeals to review adverse decisions. Censorship over advertising to be used by attorneys is provided. The printing entailed upon the department is much abbreviated by the bills. Patents shall run for 17 years, giving the exclusive right to make, use and sell to the patentee and his assigns and shall be limited to expire 19 years after the filing of the application, except that allowances will be made for actual time lost in considering the application and where interferences have been made. In no case shall a patent be in force for more than 17 years.

After 4 years, in case a patented article is not manufactured to an adequate extent, any person demanding it shall be entitled to a license to manufacture, unless the patentee can show sufficient cause for inaction. The courts are authorized to arrange terms.

All applications for patents shall be completed for examination within 6 months after filing. Unrestricted use is provided for patented devices in the hands of purchasers.

The amendment contained in the Senate bill that is not in the House resolution is as follows:

"That whenever an invention described in and covered by a patent of the United States shall hereafter be used by the United States without license of the owner thereof or lawful right to use the same, such owner may recover reasonable compensation for such use by suit in the Court of Claims; provided, however, that said Court of Claims shall not entertain a suit or reward compensation under the provisions of this act where the claim for compensation is based on the use by the United States of any article heretofore owned, leased, used by, or in the possession of the United States; provided, further, that in any such suit the United States may avail itself of any and all defenses, general or special, which might be pleaded by a defendant in an action for infringement."

The Senate bill is now upon its third reading.

Representative Currier, of New Hampshire, a member of the House Committee on Patents, has introduced a bill which provides that whenever a patent is issued to any citizen or subject of a foreign country it shall be subject, with respect to manufacture in this country, to all the limitations, conditions and restrictions that are imposed by the country of said citizen or subject upon the manufacture in that country of patents issued therein to citizens of the United States.

## New York and the Industry

### Status of the Empire State in the Manufacture of Automobiles, Bodies and Parts in 1909

WASHINGTON, D. C., April 20—Summaries showing the standing of all the industries of New York State in 1899, 1904 and 1909 have been issued by the Census Bureau. The relative standing of the industry during these three periods is as follows, the figures showing the number of factories devoted to the manufacture of automobiles, bodies and parts:

1904	35 factories
1909	135 factories

### Market Changes for the Week

The most important development of the week was the rise in finished steel products, which advanced \$1.00 a ton, the announcement being made at close of business on Saturday. Open-hearth steel rose to \$20.50 per ton at the same time. The explanation of this advance in prices is found in the statement that the steel mills now operate up to about 93 per cent. of their capacity. The increased price is held by the United States Steel Corporation as well as by a number of independent producers. Another very prominent feature of the metal market was tin, which advanced steadily during the week, closing at a price 1.35 cents in excess of the opening quotation. Copper suffered practically no change during the week, and trading in this metal was steady. Lead fell off slightly.

Crude rubber experienced another dragging week in the markets of the world. Both buyers and sellers appeared to be waiting and as is usual in such cases prices sagged off slightly in an irregular way. Plantations were heavier than Para and the level at the opening of this week was about \$1.14 1-2 a pound based upon up-river fine.

Imports at New York were in fair volume, Liverpool contributing materially more than it did last week. The bulk of importations came from Tampico.

Another development witnessed during the week was the advance in crude oil. Kansas petroleum gained 2 cents a barrel on Wednesday and Pennsylvania 5 cents during the week. Gasoline remained unchanged. The fluctuations of the market throughout the week were as follows:

Material	Wed.	Thurs.	Fri.	Sat.	Mon.	Tues.	Week's Change
Antimony, per lb.	.06½	.06½	.06½	.06½	.06½	.06½	....
Beams & Channels, 100 lbs.	1.31½	1.31½	1.31½	1.36½	1.36½	1.36½	+ .05
Bessemer steel, Pittsburgh, ton.	20.00	20.00	20.00	20.00	20.00	20.00	....
Copper, Elec. lb.	.15 85/100	.15½	.15½	.15½	.15½	.15½	— .00 1/20
Copper, Lake Sup., lb.	.15½	.15½	.15½	.15½	.15½	.15½	....
Cottonseed Oil, May, lb.	6.44	6.47	6.44	6.45	6.60	6.59	+ .15
Cyanide potash, per lb.	.20	.20	.20	.20	.20	.20	....
Fish Oil, (Menhaden)	.40	.40	.40	.40	.40	.40	....
Gasoline, auto., 200 gal. @	.17	.17	.17	.17	.17	.17	....
Lard Oil, prime	.80	.80	.80	.80	.80	.80	....
Lead, 100 lbs.	4.20	4.20	4.15	4.15	4.15	4.15	— .05
Linseed Oil	.75	.75	.75	.75	.75	.75	....
Open-hearth steel, ton	20.00	20.00	20.00	20.50	20.50	20.50	+ .50
Petroleum, bbl., Kansas crude	.64	.64	.64	.64	.64	.64	....
Petroleum, bbl., Penna. crude	1.50	1.50	1.55	1.55	1.55	1.55	+ .05
Rapeseed Oil, refined, gal.	.68	.68	.68	.68	.68	.68	....
Rubber, fine up-river Para	1.14	1.15	1.16	1.15	1.14	1.14	....
Silk, raw Ital.	4.15	4.15	4.15	4.15	4.40	4.40	+ .25
Silk, raw Japan	3.67½	3.67½	3.67½	3.67½	3.70	3.70	+ .02½
Sulphuric acid, 60 Beaumé, 100 lbs.	.99	.99	.99	.99	.99	.99	....
Tin, 100 lbs.	43.40	43.50	43.75	43.90	44.62½	44.75	+ 1.35
Tire scrap	.08½	.08½	.08½	.08½	.08½	.08½	....

During this period the number of people engaged in the industry in the state was as follows:

1899	344 persons
1904	2,101 persons
1909	11,610 persons

The report goes still further showing the amount of horsepower necessary in the operation of the factories, which was, in the different seasons, as follows:

1904	1,254 horsepower
1909	9,398 horsepower

The capital invested in these different factories during the years mentioned was:

1899	Capital invested	\$638,000
1904	Capital invested	3,347,000
1909	Capital invested	25,102,000

In addition to the capital invested the report shows the wages, salaries and also the cost of material, which in 1909 were:

Wages	\$7,016,000
Salaries	1,604,000
Cost of the material	14,908,000

A further department of the report shows the following interesting figures concerning the value of the automobile product at these periods:

1899	Value of product	\$456,000
1904	Value of product	4,260,000
1909	Value of product	30,980,000

The report goes on further to show that the value added to the raw material by manufacturing processes amounted in 1909 to \$16,072,000. At this time the automobile industry ranked in twenty-second place in the state. In 1904 it occupied sixty-ninth place.

### Peerless to Sell \$1,100,000 Bonds

CLEVELAND, O., April 20—Announcement has just been made here confirming the rumors that have been current of a Peerless bond issue. Arrangements have been made by the Peerless Motor Car Company to sell \$1,100,000 of 6 per cent. bonds and Cleveland banks have underwritten the issue. The company also has issued additional stock to the amount of \$300,000. It is stated that \$400,000 of the bonds already have been sold. The proceeds of the bonds and stock will provide a fund to take care of the floating indebtedness of the company and will enable it further to develop its commercial vehicle department. The Superior Savings and Trust Company is trustee for the bonds and the Tillotson & Wolcott Company is sales agent for the issue. The Peerless company's real estate, buildings and machinery, after depreciation charges, are appraised at \$2,320,000. This issue of bonds is a first and closed mortgage and there are no other bonds. They mature serially in from 1 to 12 years.

### Secures Canadian Trade-Mark

John N. Willys, president of the Willys-Overland company, has succeeded in having the trade-mark Overland granted to his company in Canada after action in the Exchequer court against George R. Rastall. According to the announcement of the Overland company, Rastall was formerly agent for the company at Regina, Sask., and it is alleged that he registered the trade-mark Overland for Canada stating that he was interested in the Overland Automobile Company, Ltd., of Canada, which was about to commence assembling automobiles.

The contention of the defense was overthrown in court when suit was instituted against Rastall.

### Hupp Reduces Working Hours

DETROIT, MICH., April 22—Cutting down the working time without decreasing the output and at the same time increasing the efficiency of the working force is an experiment the Hupp Motor Car Company is about to put into practice. Factory Superintendent Clarence A. Hillis has issued an order, effective April 25, whereby all employees will go on a 9-hour schedule at

a 10-hour wage scale. This practically means an increase in pay of 11.17 per cent. for the employees and the action is entirely voluntary on the company's part.

The company's new plant is about the last word in factory construction. It is well lighted and ventilated, there is a commodious restaurant, capable of accommodating 400 persons at one time and the entire plant is fitted with every device known to modern science. With these conditions it is believed that the increased efficiency will more than compensate for the loss of one working hour. At any rate the company is going to give the plan a trial.

### U. S. Rubber Employees Share Profits

Announcement of the profit-sharing plan of the United States Rubber Company has been made. Under its terms, employees of the company drawing salaries of \$1,300 a year or over may purchase common stock at 45 by paying at least \$4 per share per month. The stock averaged around 56 during March and at present is only frictionally below that figure.

### Henry Company Sold for \$9,000

GRAND RAPIDS, MICH., April 22—The Henry Motor Car Company, of Muskegon, which has been in financial difficulties for some time, has been sold to G. Sachsemaer & Levine, of Philadelphia, in the United States court here for \$9,000. The sale has been confirmed by Judge Sessions. The principal stockholders were: C. A. Latimer and E. Demageo, of Bloomington, Ill. The future of the plant has not been decided.

According to Trustee John H. Moore, the manufacture of Henry cars, of which about 600 were built, will be discontinued. Repair parts as well as the good will and repair business have been purchased by the Muskegon Automobile Company. A. R. Palmer, formerly with the Henry company, is connected with the Muskegon Automobile Company and will look after the interests of Henry owners.

### Edwards Shies at Hoosier Mud

INDIANAPOLIS, IND., April 20—Negotiations for obtaining for Indianapolis the proposed factory of the Edwards Motor Car Company have been delayed partly on account of the impassable condition of Indiana avenue between White River and the Crawfordsville Road. While local business men have subscribed for thousands of dollars' worth of stock in the new company and Carl G. Fisher and James A. Allison have offered to give a factory site near the Indianapolis motor speedway, the best the city officials have done is to offer to place Indiana avenue in better condition. When C. G. Stoddard and E. J. Edwards, who are organizing the company, were in the city some time ago, they were taken to see the site offered them. The site is said to have been satisfactory until the automobile in which they were riding became stalled in the mud of Indiana avenue.

### R. C. H. to Build Testing Track

DETROIT, MICH., April 22—The R. C. H. Corporation is planning to construct a new testing track on its property adjoining the plant at the foot of Lycaste street. It will be a quarter-mile oval affair, built of 2-inch planking and banked to permit of speeding. It will be 20 feet wide, with entrance and exit separate as a precaution against accidents. It will be supported on the outer edge by 6 x 6 posts, with the inner circle flush with the ground. Along the side will be a testing hill, with a gradient averaging 15 degrees. The cost will be in the neighborhood of \$10,000.

LOUISVILLE, KY., April 22—President Thomas C. Timberlake, of the Commercial Club, is making an earnest effort to secure the location of a branch factory of the Cadillac Motor Company in Louisville.

## Plant Closed By Rebellion

### Mexican Troubles Necessitate Shutting Down of Rubber Factories of International Company

TORREON, MEXICO, April 20—Disturbances in the guayule rubber producing district in the states of Coahuila, Durango and Zacatecas have caused almost complete suspension of that industry. Owing to the unsettled condition of affairs, not only in the matter of obtaining the services of a sufficient number of laborers but in the movement of railroad traffic, the Intercontinental Rubber company closed down its large guayule rubber manufacturing plant here recently and it is uncertain as to when it will be started up again. There has been a great falling off in the gathering of the wild guayule shrub during the last few weeks and the factories that are still in operation are running short of the raw material from which to manufacture the crude rubber.

It is expected there will be a general resumption of the guayule rubber industry on a larger scale than ever before if the revolutionary troubles are settled and the country is brought to a state of tranquillity with an assurance that foreign interests and investments in the republic are to be protected by the full strength of the Government.

### Automobile Securities Quotations

Great strength was developed Monday in the common shares of the B. F. Goodrich company when the stock rose on heavy buying from 79 7-8 to 90. At this time the books of the company are closed pending the issuance of the stock and cash dividends to stockholders of record and the issues in which trades are being made are stocks to be paid over to present stockholders. All the trades are made with the proviso, when issued.

A powerful pool is credited with the buying and the rumored intention of the leaders is to put the stock on a higher level. The price of old Goodrich stock was around 250.

The following quotations on those automobile securities which were most active during the past week in New York and other commercial centers, indicate the situation on April 24. The list shows the capital, par value of the stock, the rate of dividend and when payable.

Name of company	Capital	Par	Rate	Dividends when payable	Quotations Apr. 24, 1912 bid asked
Ajax-Grieb, com.....	\$450,000	100	12	M. Jan. 5	125 130
Ajax-Grieb, pfd.....	250,000	100	7	S.A. Mar. 5	95 100
Alum. Cast., pfd.....	100	100	7	Q. Jan. 21	100 100
Am. Loco., com.....	25,000,000	100	7	Q. Jan. 21	43 43 1/2
Am. Loco., pfd.....	25,000,000	100	7	Q. Jan. 21	108 109
Chalmers Motor.....	3,000,000	100	5	Q. Jan. 21	140 160
Cons. Rub. Tire, com....	4,000,000	100	5	Q. Jan. 21	8 9
Cons. Rub. Tire, pfd....	1,149,500	100	5	Q. Jan. 21	40 50
Diamond Rubber.....	10,000,000	100	14	Q. Jan. 20	339 341
Firestone T. & R., com..	3,000,000	100	7	Q. Jan. 21	244 247
Firestone T. & R., pfd..	1,000,000	100	7	Q. Jan. 15	108 110
Garford Co., pfd.....	100	100	7	Q. Jan. 15	100 101
General Motors, com....	15,822,330	100	7	S.A. May 1	75 35 1/2
General Motors, pfd....	14,393,000	100	7	S.A. May 1	74 75
B. F. Goodrich, com....	30,000,000	100	4	Q. Jan. 21	85 87
B. F. Goodrich, pfd....	15,000,000	100	7	Q. Jan. 21	107 109
Goodyear T. & R., com..	10,000,000	100	12	Q. Jan. 21	230 240
Goodyear T. & R., pfd..	25,000,000	100	7	Q. Jan. 21	105 106
Hayes Mfg. Co., com....	100	100	7	Q. Jan. 21	104 104
Intern'l Motor Tr., com.	5,000,000	100	7	Q. Jan. 21	32 35
Intern'l Motor Tr., pfd.	3,600,000	100	7	Q. Jan. 21	93 97
Lozier Motor Co., com..	100	100	various	Q. Jan. 21	55 65
Miller Rubber Co., com..	100	100	7	Q. Jan. 21	165 170
Packard Motor, pfd.....	5,000,000	100	7	Q. Mar. 15	104 106 1/2
Peerless Motor, com....	1,202,400	100	7	Q. Jan. 21	160 120
Pope Mfg. Co., com....	3,690,808	100	1	Jan. 31, '12	35 40
Pope Mfg. Co., pfd.....	2,192,202	100	6	Q. Feb. 1	76 77
Reo Motor Truck Co., com.	10	10	7	Q. Feb. 1	8 9
Reo Motor Car Co., com.	2,000,000	100	various	Feb. Q	106 109
Rub. Goods Mfg., com....	16,941,700	100	7	Q. Jan. 21	22 25
Rub. Goods Mfg., pfd....	10,351,400	100	various	Q. Jan. 21	85 85
Studebaker Co., com....	30,000,000	100	7	Q. Mar. 1	34 36
Studebaker Co., pfd....	13,500,000	100	7	Q. Mar. 1	97 98
Swinehart Tire Co., com.	100	100	7	Q. Mar. 1	111 113
U. S. Motor, com.....	12,193,350	100	7	Q. Mar. 1	8 9
U. S. Motor, pfd.....	11,491,133	100	7	Q. Mar. 1	34 36
White, pfd.....	100	100	7	Q. Mar. 1	08 08

# Changes in Racing Rules

## Definition of a Contest — Mechanics Must Always Be Carried in Races of 50 Miles or More

### Flag Signals Made Uniform—No Dust Allowed—Sanction Fees Unchanged

A BRIEF summary of the principal amendments to the contest rules as adopted by the Contest Board and approved by the Board of Directors of the American Automobile Association and the Manufacturers' Contest Association has been issued over the signature of William Schimpf, chairman of the Contest Board.

The definition of "contest" has been so modified as to clearly indicate what motor car events shall be sanctioned by the A. A. A. It now reads:

**Contest**—Any competition of two or more motor cars, governed by rules, in which entry fees may or may not be charged, or prizes may or may not be offered, or in which speed or durability are determining factors in evolving a winner.

The definition of "automobile, motor car or car" has been changed so as to include three-wheeled vehicles.

The minimum weights heretofore prescribed in stock chassis events have been eliminated and stock chassis contests will be governed by piston displacement, as are Class C events.

No car or chassis competing in events held under price or piston displacement classifications is eligible for any division except that to which its piston displacement or price entitles it.

Sanction fees remain unchanged except that a fee of \$1,000 is provided for events of 100 miles or more held on specially constructed speedways. To rule 17, which deals with reserved territory, the following has been added:

Any objections which an affiliated club may file against the promotion of any contest in its territory must be supported by bona fide reasons for such objections.

Under a new rule, mechanics must be carried in all road races, and in all events of 50 miles or more held on beach, speedway or track. Drivers, mechanics and officials must be persons over 21 years of age.

Two rules which extend the powers of the referee have been made. He is given the right to terminate a race before its scheduled finish, if emergency demands such action. In such case no award will be made. He is also empowered to temporarily delay or stop a race in case of impending disaster.

The deposit required to accompany written protests filed with the referee has been increased from \$10 to \$25 in the hope that a deposit of this amount will result in a decrease in the number of frivolous protests.

The use of flag signals has been made uniform for all contests in order to avoid confusion. A red flag will indicate that the course is clear, while a yellow flag will indicate a blocked course and will mean stop. The complete list of flag signals is as follows:

- Red—Course is clear.
- Yellow—Blocked course; stop.
- Green—You are entering your last lap
- White—Stop at pit on next lap for consultation.
- Black and white checkered—You have finished.
- Black with white center—A competitor is trying to overtake you.

The taking of proper measures for the protection of spectators and competitors in track races has been the subject of much thought by the board. Rules as to the construction and location of fences, and neutral zones have been formulated, as well as provisions against ditches, holes or other obstacles. The pole or top rail of fences at the inner and outer edges of the track on the curves must be removed, starting at a point where the curve

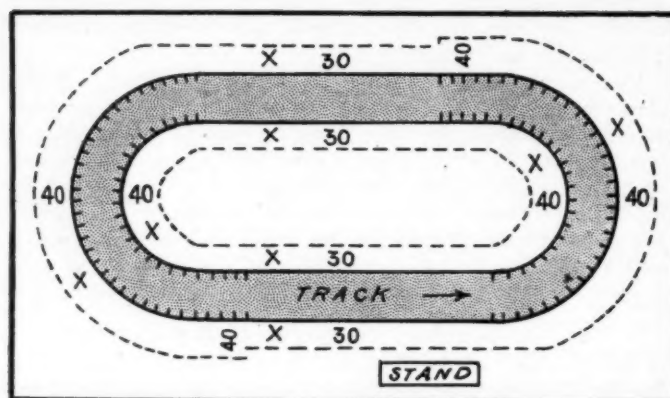


Diagram showing neutral zones to be established on mile tracks

begins and continuing to a point 25 feet beyond where the curve ends, measured in the direction in which races are run, that is, with the left hand of the driver toward the inner fence. The neutral zones which must be established and maintained during the running of races should be 40 feet in width on the inner and outer curves opposite where the pole or top rail of the fence is removed, and 30 feet in width on the straightaways.

There must be no dust, its prevention being required not by the use of water, but by oils, calcium chloride, etc. To obtain official sanction for track events all these safety precautions must be complied with.

Handicap races will hereafter be timed from the time the first man gets away from the line.

The number of starters in a track race will be limited to one car for every 400 feet of track. This will permit thirteen starters in a race held on a 1-mile track, and seven on a 1-2-mile track.

Several changes have been made in the rules for reliability contests as to classification and restriction. To rule 425 the following has been added:

Where dash adjustments for needle valves or auxiliary air valves on carbureter are furnished as standard equipment by the manufacturer, same may be used without penalty.

## M. & A. M. Helps A. A. A. Work

Checks aggregating \$5,000 contributed by the Motor & Accessory Manufacturers to aid in the activities of the American Automobile Association have been sent out. The amount is divided into two funds: one for \$2,500 to aid in good roads work, and the other, for \$2,500, to meet the general expenses of the organization. The following new members have been elected to membership: Meteor Auto Tank Company, Sheldon Axle Company, Fafnir Bearing Company and Findeisen & Kropf Manufacturing Company.

## La Targa Florio Course in Sicily

PALERMO, ITALY, April 15—La Targa Florio, the great annual Italian race which has always been won by Italian drivers in Italian cars, will be consolidated this year with the Tour of Sicily and will be held on May 26 under the auspices of a committee from the city of Palermo where the race starts and finishes. The winner gains absolute possession of the Targa Florio, which is a work of art donated each year for the event by Vincenzo Florio, and the two drivers of the winning car get each a costly silver cup. Mr. Florio has had charge of the organization of the race himself every year since 1906, and the new arrangements for 1912 are due to death in his family.

The Sicilian circuit is very picturesque and varied, following closely the Mediterranean shore for the entire distance of 1,050 kilometers, and this distance (623 miles) must be covered in one continuous run. For this reason two drivers will be desig-

nated for each car and they can take turns at driving, at their own choice, but none except those designated can drive. As the roads are not all good, it is expected that the race will extend into the night, and the maximum time allowed is 48 hours. The first eight entries were made by individual owners of cars and comprise two Ford cars, two Isotta-Fraschinis, two Lancias, one Mercedes and one Renault.

From Palermo to Termini the road is in anything but good condition, but from Termini to Patti it is perfect and abounds in fine shore views, some of them wildly picturesque. From here to Messina the route lies through orange and lemon groves. Thence south to Catania it skirts the sea while turning in part around Mount Ætna. Between Catania and Syracuse the delightful Sentini lakes are passed in full view, but from Syracuse to the ruins of the ancient Greek temples at Girgenti the landscape is a bleak marshy waste in strong contrast with the rest of the course. Now, as far as Marsala, the road is smooth as a billiard table and admirably kept, and after passing the great salt works at Trapani the racers will pass through endless stretches of vineyards as far as Alcamo and finally will return to Palermo over the Congna d'Oro.

The cars will be started 10 minutes apart.

### Quakers' Guessing-Economy Test

PHILADELPHIA, April 20—All details have been perfected for the fifth annual social run and gasoline economy test of the Quaker City Motor Club, next Saturday, April 27.

Pathfinder and pilot, George E. Potts, together with Paul B. Huyette, president of the club, laid out the route to be covered, adopting the short line to Atlantic City as being the most desirable and in the best condition.

Two prizes are to be awarded in each class. A ladies' prize will also be offered in the social contest. In the economy feature the prizes consist of sterling silver cups.

The run is divided into two classes: a guessing contest and a fuel economy test. In the first-named division drivers will place their guess on a card which will be handed to President Huyette at the finish; these times to be added together and divided by the number of cars.

The fuel economy test will be based on the consumption of a standard gasoline, the consumption in ounces to be divided by the gross weight of the car.

The social section of the run will be sent away by the official starter, G. Hilton Gantert, from the Hotel Walton promptly at 1 o'clock. The economy section will be allowed to leave the White garage, where they will be parked overnight, at 11:30 a. m. and will proceed to Van Sciver's, Camden, to be weighed and checked out by the chairman of the Technical Committee, Chas. Stead.



Map of the Targa Florio race course in Sicily

## Chalmers Wins in Texas

Finishes 697-Mile Course With a Total Penalization of But 76 Points—Also Captures O'Connor Cup

Packard Touring Car Second—Storm Causes Delay—Accidents Numerous

SAN ANTONIO, TEX., April 22—One of the most strenuous short reliability tours in the history of automobiling in Texas was run off between April 6 and 12 when the non-stock reliability tour, held under the auspices of the *Daily Light*, was decided. The run was laid out from this city to Corpus Christi, Port O'Connor and return, a distance of about 697 miles.

A Chalmers runabout received the lowest penalization, being debited 76 points for losing its fan and damaging its radiator in the early stages of the run.

A Packard touring car won its class prize with a penalty of 177 points for making various adjustments and for taking on fuel and water. The other three cars to finish as contestants were touring cars, a Hudson with 646 points for adjustments, lateness and taking supplies; a Buick with 569 points levied for a broken steering rod, and a Flanders, 370 points for work on its magneto. All the rest either withdrew or were penalized over 1,000 points each, which is equal to withdrawal. The field consisted of fifteen entries.

The first day's run was accomplished without very unusual happenings, but from that point to the finish the tourists underwent nearly everything in the way of weather and road conditions. A tremendous storm broke at the opening of the second day which brought about the withdrawal of the Oldsmobile entry and the disability of several others. When the column finally reached Aransas Pass it was found that there was such a heavy sea running that it would be perilous to undertake the ferry passage to St. Joseph Island. The tour was halted until Tuesday, April 9, when the travelers were obliged to build a bridge over Cedar Bayou. This work proved to be useless as the ferry boats arrived just as the labor was finished and the cars were transported across the bayou on floats.

Accidents were numerous, owing to the storm and the condition of the roads. The Metz went out with a bent steering knuckle caused by hitting a concealed stump; the Courier broke its frame; the Stoddard lost a wheel; the Staver hit a cow; the Stearns-Knight broke its right rear axle driveshaft, being pulled out of quicksand near Aransas Pass. The Franklin and Marmon stuck in the mud, and the Pierce pair withdrew without reported reasons.

The Chalmers car was awarded the Port O'Connor Cup in addition to the runabout prize. The scores were as follows:

No.	Car	Driver	Class	Score
1	Chalmers	W. Morrison	Runabout	76
2	Pierce-Arrow	W. Steinhardt	Touring car	Withdrew
3	Stearns Knight	F. Armstrong	Touring car	Withdrew
4	Hudson	Chas. Robert	Touring car	646
5	Packard	J. Langford	Touring car	177
6	Stoddard-Dayton	W. C. Mulligan	Runabout	Withdrew
7	Staver-Chicago	F. D. Schultz	Touring car	Withdrew
8	Franklin	A. B. Weakley	Touring car	Withdrew
9	Buick	W. C. Marr	Touring car	569
10	Flanders	Russell Johnson	Touring car	370
11	Marmon	F. P. Warren	Touring car	Withdrew
12	Metz	C. J. Chahot	Runabout	Withdrew
13	Courier	A. H. Fraser	Touring car	Withdrew
14	Pierce-Arrow	Chas. Noack	Touring car	Withdrew
15	Oldsmobile	F. J. Fielding	Runabout	Withdrew

BRIDGEPORT, CONN., April 20—Announcement has been made by the automobile dealers of this city that no hill climb will be held this year due to lack of co-operation. The last hill climb was held at Snake Hill, Fairfield, on the outskirts of the city, 3 years ago and the dealers' association has not yet fully recovered from the effects financially.

# Milwaukee Waiting for Word to Go Ahead

## Motor Cups Holding Company Representatives to Select Course for Vanderbilt and Grand Prix—Two Additional Events Possible

MILWAUKEE, WIS., April 23—Awaiting the visit of official representatives of the Motor Cups Holding Company to Milwaukee to investigate the situation and conditions surrounding the running of the road races for the Vanderbilt cup and the Grand Prix next September, the contest board of the Milwaukee Automobile Dealers' Association and Assistant Secretary Bart J. Ruddle are gathering data and statistics and getting the consent of all interested to the end that actual preparations may be begun as soon as the Cups Company affixes its official O. K.

The association is desirous of getting the Cups company's sanction on a course for the events so that the actual work of improving the roads may be taken up without delay. It is realized that a great amount of solid, hard work must be done in any event and that there is no time to lose.

The Greenfield course having been favorably commented upon, the dealers are devoting practically all of their attention in matters relating to courses to this circuit. The farmers living along the proposed course are proving to be friendly toward the proposition and not inclined to hold up the dealers on prices for acreage for grandstands and other requirements.

The entire circuit of the Greenfield course is composed of natural dirt highways. There are some stretches which today are in splendid condition, although the season is early and hardly a stroke of work has been done upon them. But there are some bad spots which will require a lot of attention before being safe even for ordinary travel at ordinary speed. There are but six turns in the course, the worst being at the southern end of the diamond-shaped circuit. At the point where the Beloit road is left to cross over to the Janesville Plank road by way of the Kelley's Park road there is a steep hill with several bad turns, which it is proposed to eliminate by cutting through an orchard and make a turn with a radius of from 700 to 800 feet.

At the opposite end of the course there is a stretch of approximately 3-8 mile running along the southern city limits of West Allis (Lincoln avenue) which is entered from the Janesville Plank road by a square turn which will probably be the most dangerous turn of all. The remaining turns are generally wide and at broad angles. The course will have to be definitely fixed upon by June 1.

No decision has been made with regard to conducting two races in conjunction with the two main events. The proposed Milwaukee Challenge cup will probably call for a competition for stock chassis under 575 cubic inches piston displacement, and the other trophy, which is believed to have been promised by Col. Gustave Pabst, will be for light cars, probably under 231 cubic inches displacement.

## No Postponement of Sweepstakes

INDIANAPOLIS, IND., April 22—It was announced today by the management of the Indianapolis Motor Speedway that entries for the 500-mile international sweepstake race on Decoration Day will close on May 1. This announcement was made to deny the rumor that the entries would be left open until May 15 and that the race would be postponed. There are now enough entries in to guarantee the race.

Carl Fisher, president of the Speedway, declared emphatically

that under no circumstances would the race be postponed and that the entries will close on May 1 as announced.

One of the interesting features of the big event will be the tryout that wire wheels will receive, as already several entrants have announced that they will use such wheels in the race. The Case entry has been announced as one equipped with wire wheels and the McCue wire wheel will be used on the Firestone-Columbus entry. Wire wheels are being used because of their ease on tires, which is due to the wire spokes of the wheels conveying the heat from the tire, whereas the wood felloe, playing the role of a non-conductor of heat, keeps all the heat generated in the tire in it, thereby working early tire damage. The wire wheels to be used will all be of the demountable type, and the McCue people claim that a change of their wheel can be made in 15 seconds.

[Inquiry of the local agencies and branch houses in New York failed to disclose any other entries than the Case and Firestone-Columbus that are to be equipped with wire wheels for the big sweepstakes. It is said that the National company purchased a few wire wheels recently, but for what purpose was not divulged. A proposition to use them on the two Mercedes cars was received by the Daimler Import Company, but so far as has been announced no action has yet been taken.] In this connection it is interesting to record that 28 of the 29 French entries in the Grand Prix will be equipped with Rudge-Whitworths.

The list of entries to date includes two Stutz cars, two Nationals, two Mercedes, two Cases, and one each of the Fiat, Lexington, Cutting, Simplex, Knox and Firestone-Columbus.

## Preparing for Galveston Races

GALVESTON, TEX., April 20—Elaborate plans are being made for the Galveston beach automobile race meet to be held here August 8, 9 and 10, during the annual cotton carnival. Captain J. W. Munn, who is in charge of the proposed event, recently held a conference with George W. Baker, of Dallas, president of the Texas State Automobile Association and also president of the Dallas Automobile Club, in regard to arranging special automobile tours by the different clubs of the state, to end in Galveston on the day preceding the opening of the races. One of the features of the gathering here of automobile enthusiasts from over the state will be the endurance run which is being arranged by Frank P. Holland, of Dallas, who offers \$1,000 in prizes to the successful farmer and ranch contestants who are required to drive their own cars on the runs. It is announced by Captain Munn that in addition to the \$6,000 in prizes already offered in the Galveston races a special trophy cup has been put up by the Texas State Automobile Association, the latter to be awarded to the driver of the winning car in the 75-mile race which is to conclude the first day's program.

WASHINGTON, D. C., April 20—As sufficient interest in the proposed Chesapeake reliability tour could not be aroused, the Automobile Club of Washington has abandoned the project. There is some talk of holding a 3 days' reliability tour the first week in June, with Harrisburg and Philadelphia the night stops. The matter will be decided by the board of governors of the club at a meeting to be held during the next few days.

DETROIT, MICH., April 20—Two Flanders 20 cars have been entered in the Santa Monica road race, May 4. The cars have been named in the event by the Studebaker Corporation's Los Angeles branch. They will be driven by Bob Evans and Jack Tower. As the Santa Monica contains no class for the Flanders 20, Evans and Tower will be forced to race against much larger cars.

SYRACUSE, N. Y., April 20—The Automobile Club of Syracuse is preparing plans for its club runs for the coming season. There will be at least two of these—the sociability run for the Watson cup, which will be run earlier than last season, and another, the details of which are not yet settled.

# Communications From the Manufacturer

## Service Advice for Business Man Who Seeks Information From the Truck Maker—Proper Methods of Ad- justing and Grinding Valves

A MOTOR TRUCK manufacturer can give four kinds of service to a business man who comes to him for advice on transportation problems.

1. Long life. He can sell him a truck that has proved profitable long life by years of consistent good service.
2. Right sizes. He can help him choose the right size of truck and style of body for each different requirement of his business.
3. Operating instructions. He can instruct the man who is going to run the truck how to operate it most economically and how to give it every-day care.
4. Keeping in order. He can provide the "service stations" where the owner will be sure of getting materials and workmanship of factory standard with the same personal attention after he has bought his truck as when he was only a "prospect."

An ideal inspection system of trucks is helpful in the following ways:

1. Inspectors keep in close personal contact with drivers and instruct them in regard to proper operation and care of trucks.
2. Inspectors show the drivers as thoroughly in regard to the details of the mechanism of truck as possible emphasizing and constantly impressing on them the fact that good care means efficiency in operation.
3. Inspectors suggest the necessary repairs, anticipate the breaking down of trucks before this trouble actually occurs, and impress upon the drivers and owners the necessity of making small repairs before anything serious happens.
4. The inspectors impress upon the man at the wheel that if he will take this kind of care of the trucks the manufacturer will do all it can to help him advance himself and make an incentive for the man who shows a conscientious interest in the truck he drives to help him to earn more money through the increased earning power of the truck gained by this personal attention.

For the customer, the wise manufacturer is doing a great deal to bring about that education in the use of motor trucks which is so badly lacking and which causes nine-tenths of all the complaints from motor truck transportation. By tactful reminder and concrete example he is endeavoring to advise the driver when his truck is overloaded and trying to have him see that it is not to his advantage to do this, neither is it to his advantage to run the truck at too high a speed.

Again, the manufacturer is making a determined but tactful effort to have his customers know whether they have the right man as a driver for their trucks and by concrete illustrations impress upon the customers the fact that a large business tool as valuable as a motor truck must be properly taken care of, and that the man who drives it or takes charge of it must have proper consideration in order to rouse an enthusiasm and to secure the proper results.

In many instances the truckmaker sends one of its skilled drivers out, or trouble men to take charge of the truck when a fault has developed from overloading or overspeed and sometimes he goes as far as to take the load off and actually deliver it to a customer. In other words, the manufacturer of today is trying to establish the same service but not agreeing or promising to do things that from their very nature of the conditions

are unreasonable and impossible merely for the sake of putting his trucks in service. The keynote of a service policy should be the proper education of the customer, primarily, with the end in view that eventually his confidence will be won and he will be shown how he can secure the return which he should on his investment. The proper response to an educational policy on service should not be expected immediately. It takes time to discredit a long-followed-out custom which has prevailed for many years and is handed down from horse-truck practice.

R. W. HUTCHINSON, JR., International Motor Company.

## Adjusting and Grinding Valves

A great many car owners make a practice of adjusting valves while the motor is hot. This is an error. It is proper to note any abnormal condition like this, but wait until the engine is cold. If this suggestion is not heeded, particularly with motors of overhead valve design, the adjustment will be inaccurate, valves will not seat properly, resulting in weak compression.

An adjustment too tight on the intake valve or too loose on the exhaust valve permits the fuel to escape, thus reducing the compression and diminishing the power.

An adjustment too loose on intake valve also reduces the compression by shortening the length of the compression stroke. The exhaust valve under loose adjustment opens late. This retards the engine action as the exploded gases do not have prompt exit and a portion of the power intended for compression stroke is wasted in recompressing dead fuel.

There are four cylinders, each requiring equal exactitude of adjustment to keep the valves of one cylinder from overlapping those of another. That is one reason why an engine throbs, luges, misses, backfires and lays down on a hill.

Examine the valves at regular intervals, even though the compression is apparently normal and uniform in each cylinder. The exhaust valves are especially susceptible to corrosion on account of the intense heat of the escaping gases. The seats soon become pitted, the carbon dust and vapor is caught and confined in every little crevice and in an incredibly short space of time the valves, if neglected, will be covered with a deposit of carbon which will affect the running of the motor to a marked degree. The only remedy is to grind them.

There are several good grinding compounds on the market. It is advisable to use a coarse grade in the first operation and then finish off with a finer one to impart a nicely polished surface. A very good home-made mixture is obtained by making a thin paste of a couple of teaspoonfuls of kerosine, a few drops of oil and enough fine flour emery to thicken the preparation to a consistency where it will not run too freely.

Remember even the minutest particle of this grinding abrasive must be kept from finding its way into the combustion chambers. Pack a good, generous quantity of waste or rags well soaked in gasoline around the valve seat.

Apply a moderate coating of the compound to the bevel face of the valve and return it to its seat. Rotate the valve forward and back until the entire bearing surfaces are polished bright and smooth the full width of the face. If the guide is worn or the stem bent care must be exercised or the valve will not be true, that is, the bevel face will not be flat but a trifle convex. The valve should never be turned the whole way round. Rotate it back and forth a quarter turn at most under light pressure, lifting it up frequently and turning it half way round before seating it again. This method distributes the friction evenly.

After working up a good, clean seat entirely free from spots or pits, wash the valve, valve seat and guide thoroughly in gasoline. If the stem is rough or gummy, smooth it up with emery cloth and clean it afterwards before replacing it in the guide. To test the effectiveness of the work, mark the valve seat in several places with a lead pencil and turn the valve around a few times. If the marks are entirely rubbed off, the work may be considered well done.

T. A. PECK, Abbott Motor Company.

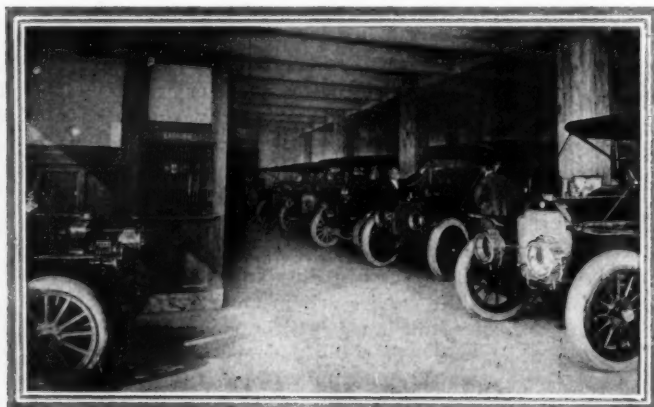
## Jacksonville a Center of Automobile Activity

Most Important on South Atlantic Coast  
—Through It Almost All Florida Is  
Supplied—Good Roads Scarce

Enthusiasm and Energy Is Such That the Near Future  
Will See This Defect Overcome

JACKSONVILLE, Florida's metropolis and said to be the fastest growing city in the United States, has a population of about 80,000 permanent residents. It is the most important automobile center on the south Atlantic coast of the United States, one of the principal seaports of that section and the commercial and industrial center of Florida.

Jacksonville is one of the most modern cities in the United States and ranks high as a progressive, wealthy and important place. Its modern aspect is due to the fact that fire destroyed



Gilbert salesroom, home of the Maxwell line in Jacksonville

the city about 10 years ago and since then it has been rebuilt in every respect.

The city is located about 15 miles from the Atlantic ocean, as the crow flies, on a bend of the St. John's river. This waterway affords a deep, navigable channel beyond the city and has been improved on a mammoth scale to handle present shipping as well as to prepare for a big increase in the future.

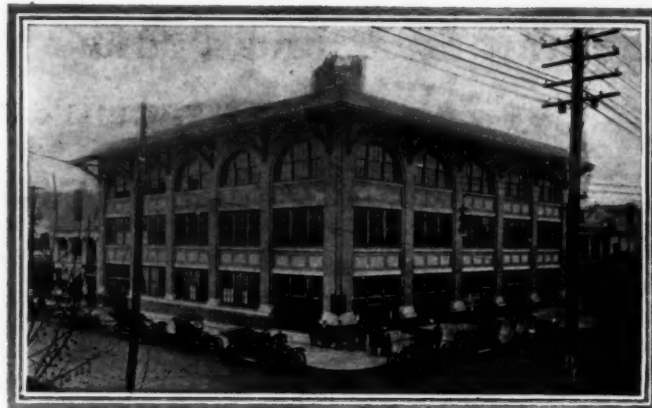
One steamship line that has terminals at Jacksonville recently completed vast dock plants that appear to be large enough to take care of its business if it should double in 10 years.

Throughout the business structure of the city there is a stratum of optimism. Directors of banks, public officers and other prominent residents of Jacksonville delight in telling how they reached their present status in a few years. Some of them were clerks in other cities on salaries that were close to the vanishing point only a few years ago and to-day are high in the energy and industry of the city, leaders in finance, business and the professions.

### Is Florida's Automobile Center

From the viewpoint of the automobile, Jacksonville is a lively local market and distributing center. It is to be noted that any city that is prosperously located is a good field for the automobile and Jacksonville's prosperity has exerted a noticeable demand for all types of passenger automobiles.

The unusual point about the automobile trade of Jacksonville is that it is so large in view of the fact that there is such a small



Exterior of Gilbert establishment, the most complete in Florida

available mileage of good roads upon which the cars may be used with any satisfaction.

In the immediate past this condition was aggravated and outside the city itself there was small opportunity to use the cars with pleasure. At present the situation is considerably better, following the opening of the fine new road to the ocean and the extension of road-making in various directions from town.

But the future is bright for automobilists in Jacksonville. The horrors of some of the adjacent roads have been so strongly emphasized that the city, county and state are taking action to correct them. So far there has been some progress made in this direction, but the situation is much disordered.

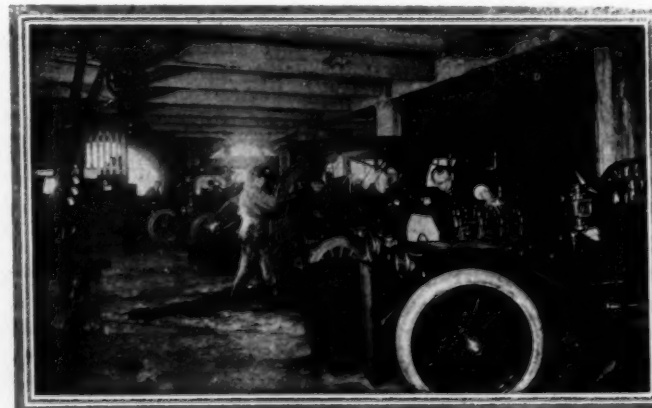
### Medium Price and 60-Inch Tread

It has been estimated that there are almost 900 automobiles of various types owned in the city. These range from the highest grade and price in American and foreign manufacture to the smallest cars made. But the bulk of the Jacksonville automobiles are medium-priced American cars, equipped with 60-inch treads. The simple fact that most of them are so equipped is a tribute to road conditions that are peculiar to the South. Wagon treads are generally 60 inches wide and in passing over sand or soft roads of any kind the additional width was supposed to carry with it a certain amount of advantage.

This alleged advantage has proved to be fanciful, but the 60-inch tread still obtain. The effect of the wide-tread wagons has been to force the adoption of similar treads for automobiles. It has been proved time and again that the standard treaded cars can negotiate the sands quite as briskly as those with the wider treads, thus the innovation is unnecessary.

Jacksonville has a large number of private garages, equipped with everything needed in the care and maintenance of the car and it also has a remarkable collection of public garages and salesrooms.

In the restricted sense it has no gasoline row, most of the



Machine shop connected with the Gilbert garage



Exterior view of Roberts Motor Company's store in Jacksonville

establishments being scattered rather widely throughout the section of the city adjacent to the retail business quarter.

The largest establishment of this kind is the Fred E. Gilbert garage in which the Maxwell line is handled. The building is 110 feet square and is three stories high. The ground floor is partially occupied by the salesrooms and offices, the partition being erected 42 feet from the side wall and extending from front to back. The remainder of the ground floor is used for live storage of cars and as an accessory salesroom.

A commodious freight elevator is located back in one corner of this room, connecting the upper floors with each other and the street level. The upper floors are equipped with machine tools and overhauling machinery. Fully 200 cars could be stored in the Gilbert garage at one time and twenty could be handled on a repair basis with comfort.

The building was completed only a short time ago and is the feature of automobile selling and maintenance in Jacksonville.

Full lines of parts, supplies and accessories are carried by the Gilbert garage and in fact the same may be said for most of the other companies represented.

### Garage Accommodations Are Ample

The Nolan garage, the Jacksonville home of the Cadillac, is a popular automobile headquarters. Claude Nolan, representing the Cadillac in Florida, is one of the aggressive spirits of the trade and enjoys a very large patronage. In fact the popularity of the car and its representative may be gauged by the fact that in last year's Glidden Tour there were three solid three-car teams of Cadillacs in the competition besides a couple that competed in mixed teams.

Mr. Nolan's enterprise in gathering such a large collection of his customers in the tour developed one of the features of the run.

Besides a commodious showroom the Nolan garage has a fine repair shop and service department.

The Ford establishment in Jacksonville is quartered in a big



Claude Nolan's garage and repair shop where Cadillacs are handled

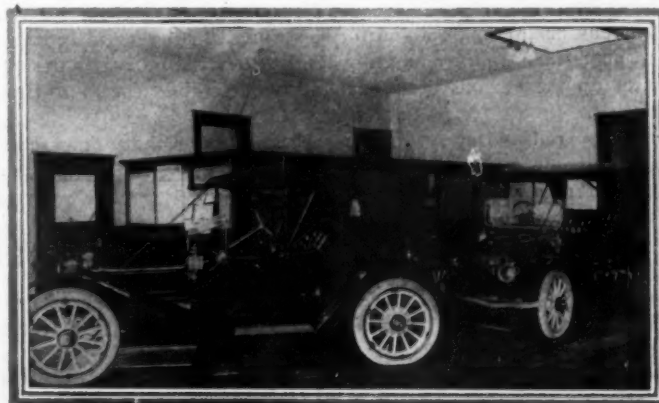
building once used as a rink. The Ford is a popular car in this section and is handled on similar lines to those followed by the company elsewhere in the United States. No pains are spared to give service and keep the cars on the road. The facilities of the Ford company for accomplishing this purpose are pointed reasons for the extent of Ford business locally.

The Roberts Motor Company, handling the E-M-F and Flanders, is one of the big agencies of Jacksonville. Both elements of this line enjoy much popularity in the South. The company has a modern showroom, centrally located, and is growing rapidly.

Practically every other well-known line of automobiles is handled in Jacksonville, but in the majority of cases one agency will control the sales of two or more makes of cars. In a few cases a single agency will handle as many as four makes.

Nineteen hundred and eleven marks the birth of a new era in motoring in Florida and each subsequent year will probably feel the impetus of a larger trade. The simple fact that there are about 800 cars in Jacksonville and possibly 75 cars scattered along the route from Jacksonville to the Georgia line is the most promising evidence of real automobile enthusiasm.

If there are almost 900 automobiles owned in a section that has been practically without touring highways, it would seem probable that when good roads are common the number will be vastly increased.



Interior of Roberts Motor Company's salesroom, home of E-M-F

It requires a high degree of enthusiasm to spend real money for a car that can be used only in the immediate vicinity of home. Most of the pleasures of motoring lie in more extended touring, such as week-end runs, all-day runs and tours that occupy several days. To be sure the automobile owners of Jacksonville now have the magnificent streets and boulevards of their city to ride upon and may take pleasure in the run over to Pablo beach, but touring over the same roads all the time grows to be threadbare after awhile.

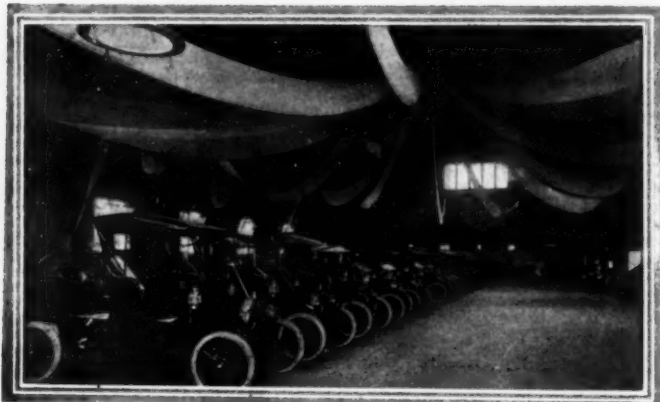
Thus the prevalence of automobile spirit must be attributed to the enthusiasm of the owners in a measure, but most of all to the hope that good roads are in immediate prospect.

### Much Still to Be Done on Roads

It is practically 130 miles from Jacksonville to the Georgia line following a westward course through Live Oak and Madison, and only a short distance northward along the ocean to the State line on the road leading to the cities of Brunswick and Savannah.

There has been quite a lot of work done on this latter highway, but it would require a stretch of the imagination to call the road good. To the south the roads are not much better than the highway to Live Oak, except that the ocean beach affords a smooth path for speed work in spots. This, however, should not be confused with touring.

Speaking again of the road across the north end of Florida, it may be said that in the course of a few months it will be vastly



Ford headquarters at Jacksonville has size in its favor



Tire repair department of the well-equipped Gilbert garage

improved. Already it is graded in certain sections and the effort is being made to mix plastic clay with the sharp sand which forms the present road beds and to spread this substance thickly over the roads. Florida has about 51 inches of rain each year and with a reasonable amount of traffic this variety of road should prove a material improvement over what exists now. The grading work, so far as it has progressed, has been done in a business-like manner. The roads have been cut through the pine barrens and swamps at uniform width and all that is required to make this highway an enjoyable adjunct of touring is to connect up the various sections and complete the process of surfacing.

This would do away with the necessity of bridging quicksands with pine needles, moss and other vegetation and would eliminate the heart-breaking and automobile-smashing detours that worried the Glidden tourists.

It is quite a commentary on road conditions that no resident of Jacksonville, as far as can be determined, has ever tried to negotiate the road to Live Oak, Madison and the Georgia state line more than once unless he was doing it to establish a record of some kind.

One important phase of future automobiling in Florida is the suburban use of the car. There are numerous colonies of settlers located within small radii of the big cities of the state. These colonies are largely composed of intelligent and advanced thinkers and workers along agricultural lines and the result is that these communities are growing rapidly in wealth. With the improvement in finances comes the demand for good roads and good transportation and the insistent demand for automobiles.

According to the investments that have been made in dock facilities at Jacksonville, the steamship companies which are notoriously conservative believe that the city is destined to occupy a much more important relative position than it does now. Such growth as they are preparing to handle can come only from agriculture.

#### Good Roads Needed to Boost Trade

Profitable agriculture means good roads and good roads mean automobiles operated for pleasure and profit. Thus the concerted movement now being felt in Florida having good roads for its object is one of the most significant developments for recent years as far as the automobile industry is concerned.

Such improvements as are contemplated in Florida roads are large, but when it is remembered that 10 years ago there was no road worthy the name between Plainfield and Lakewood, N. J., and that three years ago the splendid roads of Georgia were non-existent, the task that confronts the Florida road builders does not seem so serious.

If Georgia can construct fine roads traversing the state like the spokes of a wheel, Florida can build a road crossing the northern counties that will not suffer by comparison providing sufficient energy and money are devoted to the purpose. Georgia and the Carolinas are naturally equipped with road material in

their red and yellow clays, but Florida has the sand to mix with the clay.

Thus with one of the essential elements of southern road building at hand in quantity, the other will not be found very difficult to acquire and the road across the northern end of the state will probably be a reality before another year.

Around Jacksonville the problem of road construction is not complicated with the action of freezing water. It is not necessary to crown a road so high that horses cannot use it in order to make it last more than a year. In the North when the horses' calks penetrate the surface and allow water to settle against the foundation of the road, a freeze means the destruction of the road. In the South where there is no frost the road needs only to be graded and then drained after a good surface has once been provided.

There is no necessity of such costly construction as stone-based macadam when Georgia and the Carolinas have proved that such roads as the one leading into Charlotte and Concord and the Macon boulevard are possible.

There is a big field for the road maker in Florida, but by the same token the state is aware of the fact and is seething with enthusiasm and energy for good roads.

#### The Automobile in Japan

Interesting reports on the automobile situation in Japan have just reached this country as the result of the arrival at the Regal factory in Detroit of the company's representative in that empire. While narrating a few experiences during his 19 years of residence on the island, the gentleman said:

"The worst enemy to the successful marketing of automobiles in Japan is the heavy rainfall. An almost incessant downpour keeps the roads in a very poor condition most of the time and as a result the Japanese who can afford to buy automobiles have little desire to travel. In consequence the proportion of the people who are in the market for cars is much smaller than it is in the United States. Practically every car in use must be equipped with rough-tread tires. The plain-tread tires will not afford traction on the slippery roads.

"A movement which will do much to overcome the present bad condition of the roads is that now on foot to secure an appropriation of a sum equal to \$3,000,000 in our money from the government. The expenditure of such a sum to improve the roads will greatly relieve the present situation, and there is every reason to believe the proposed bill will be carried.

"The future of the automobile industry in Japan will depend largely on the quality of the cars sent over. The Japs are shrewd people and demand cars that will stand up. America will need her best moderate-priced cars if she is to continue her control of the field. The fact that the Japanese as a nation will buy only what its royalty likes and approves, means that America must send her best."

# Esplanade for Automobiles

## To Avoid the Dangers of Casitas Pass, El Camino Real is Being Transformed By a Succession of Causeways

By This Means the Low Spots Have Been Bridged, Making a 12-Mile Sea Level Road

SANTA BARBARA, CAL., April 12—Firm in the belief the required additional \$10,000 needed will be secured by popular subscription, work is being rushed on the Rincon causeways, which will prove one of the great boons to automobilists in southern California. The \$35,000 already raised for the purpose represents contributions from every section of the country.

The task is quite an unusual one and it was started when it became evident tourists feared coming through here because of the reputation of the Casitas Pass, which lies just beyond the mountains of the Rincon. In fact, for years the project of constructing a road around the Rincon has been discussed, but it was a bit slow in taking shape. It was found the expense would be unusual because of the fact that a considerable portion would have to be bridged. Before the road through the mountains was built, this stretch was a part of historic El Camino Real (King's Highway). It could only be passed in places at low tide and it was just such places that had to be provided for.

The work has now progressed to a stage where the Rincon sea-level road can be fully appreciated.

The Rincon takes its name from Rincon creek, the dividing line between Santa Barbara and Ventura county. It is but a short distance after crossing the creek at the base of the mountain that one comes to the first causeway, 2,000 feet long. A few

hundred feet beyond is a shorter one, 400 feet long. These have been completed and are open to travel. A mile farther to the eastward, at what is known as Punta Gorda, is the scene of present operations, and the total length of that causeway will be 4,400 feet. From there on to Ventura the roads are excellent.

The method of construction is simple. Eucalyptus piles are driven and this is given a substantial top, the floor of the causeway, with wooden railings to each side. Asphalt will in time be laid. The stretches between the causeways are not in very good condition at present, although passable. But the state highway commission has already indicated its intention of including this in the great highway system, so it will be well cared for.

Another obstacle will be cared for by Ventura county, a bridge across the Ventura river to cost \$60,000. Until this has been provided a temporary bridge will serve.

At no place on the coast are mountains and sea brought so closely together as along the Rincon. The Southern Pacific coast line traverses it, but had to do unusual work to provide grade. The road lies below the railway. One has a great sweep of the Pacific the entire distance of 12 miles, a view unsurpassed on the coast. It is hoped to have the work completed by fall.

## Marking the Pacific Highway

SEATTLE, WASH., April 12—At a recent meeting of the Executive Board of the Pacific Highway, definite plans were adopted for immediate marking of Pacific Highway from the Oregon-California boundary to the city of Redding at the head of the Sacramento Valley. This is only a comparatively short stretch of road, the distance being considerably less than 200 miles, but at the present time no signs at all of any kind direct the tourist who may happen to be passing through the country. Some of the worst road on the Pacific Highway route is in this stretch.



Upper left—Showing the finished portion of the 2,000 feet of causeway at Rincon Point, Cal., looking east

Upper right—How the work of completing the causeway is progressing at Punta Gorda; this section of the work will be 4,400 feet long

Lower—A short stretch of the causeway, looking westward toward Rincon Point, showing where the causeway debouches onto the filled-in road



## Improved Friction Drive

### Details of New Trufant System, Which Is Designed to Overcome Difficulties in Starting and in Running at a Very Low Speed

**I**N spite of the fact that friction drive is commonly thought to be of secondary importance in the industry today, it seems that there are inventors still working upon it. W. E. Trufant has the following to say concerning the friction drive which is illustrated on this page: "It is well known that in the usual type of friction drive for automobiles there is difficulty in starting and in running at very slow speed because the velocity of the contacting friction surfaces is so slow. To overcome this, great pressure must be applied and the wear and strain are excessive.

rotates faster than the other and so controls the direction of rotation of the differential case.

"To insure equal pressure on each roll the pressure is applied to the yoke at a point between the rolls, and the yoke is hung on a pivot.

"To get a higher speed forward than the differential motion will allow the differential is locked and one roll held out of contact with the disk, in which case the operation is exactly the same as with the ordinary friction disk drive, but uses the neat bevel-gear drive in place of the chain drive.

"On account of the great power at low speeds this drive is particularly adapted to motor trucks. [It is difficult to see a great gain in efficiency where there is such high pressure between the moving parts.—Ed.]

"In Fig. 1 A is the engine shaft; B the friction disk; C and C' the rolls; D the differential case, and E is the yoke which carries the rolls; F the lever to move the yoke and rolls along the face of the disk; G the lever to press the rolls against the disk, and H a latch to hold the left-hand roll away from the disk when the differential is locked.

"More of the details showing how simple the construction is are given in Figs. 2, 3 and 4. As will be noticed in these figures all that is necessary to lock the differential is to move one of the rolls and its shaft axially until the differential gears engage each other."

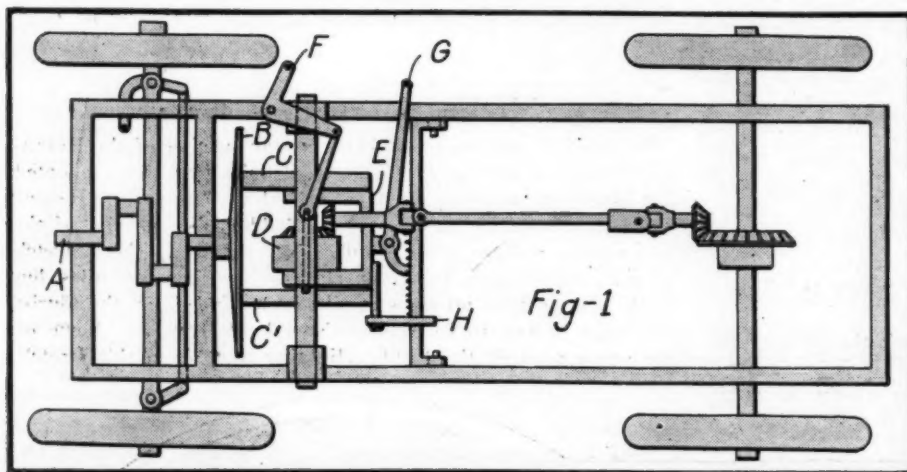


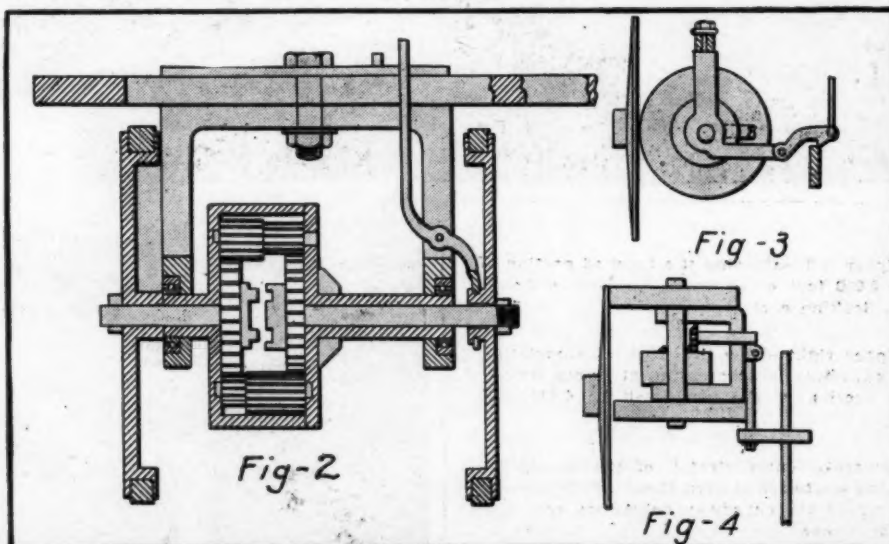
Fig. 1—Plan view of friction drive suggested by W. E. Trufant

When the roll is in the high-speed position and the operator carelessly applies the same pressure as was necessary on low speed the strain, wear and loss of power are very great.

"To overcome all this and get almost unlimited power on the slowest speeds with little strain or wear of the parts two rolls are employed mounted on a yoke one on each side of the center of the disk with a differential gear between them and a bevel gear on the differential case to transmit power to the jackshaft or rear axle. In this construction, when the rolls are an equal distance from the center of the disk there will be a high velocity of the friction surfaces, but no movement transmitted to the differential case as the gears in case are idle because one roll rotates in one direction at the same speed that the other rotates in the opposite direction. Now if the yoke and rolls are moved a little to the right so that one roll will be farther from the center of the disk than the other, you will still have a high velocity of the friction surfaces and a forward movement will be transmitted to the differential case at a speed equal to one-half the difference in the speed of the rolls. When one roll is at the edge of the disk and the other near the center the speed will be nearly one-half the speed of the fastest running roll.

"The reverse is obtained by moving the yoke so that the roll at the left

In marine work, besides the economy of operation, the saving in space of 40 or 50 per cent. over a steam engine of the same horsepower is a strong point in its favor. For the commercial vehicle, the heavy-oil engine offers great possibilities. The cheapness of its fuel, its compactness and high efficiency under full-load conditions make it especially suitable for truck use. In its present form, the common types of heavy-oil engine, such as the Diesel engine, are as yet too slow-running, cumbersome and weighty for commercial car use.



Figs. 2, 3 and 4—Details of construction of the friction drive above described

## All Hail Sepadifferenzit!

**A German Material That Will Not Only Relegate Gasoline to the Dump-heap of Things Outworn, but Provide a Profitable By-Product**

**N**EVER-CEASING wonders of chemistry or journalism! Unless the staid *Allgemeine Automobil Zeitung* is the victim of a grievous and elaborate hoax, gasoline will henceforth be unnecessary for motoring, the four-cycle hydrocarbon engine will lightly metamorphose itself into a two-cycle caloric engine of twice the power and alimented only with disintegrated air. Moreover, the enterprising automobilist may hope to pay his tire bills from the by-products of his hard-working motor. The more he motors the less it will cost him, and farmers will rise to bless him, for his by-product will be a fertilizer, the same which the cataracts of Norway, Switzerland and the Cape Colony are now producing in great quantities by robbing the atmosphere, shaking it first into bits by means of gigantic alternating electric arcs. Alas for these industries, whose dividends have been so satisfactory! The industrious motorist will compete with them. The Standard Oil Company of America, Russia, Germany and the world in general must step down and out or else go into the drug business and make SEPADIFFERENZIT. Its incipient absorption of the biggest drug stores in New York City, it may be allowable to surmise, is the preparatory step in this direction, for is not the S. O. usually informed fully as well and fully as early as the esteemed *Allgemeine Automobil Zeitung*? And it is *Sepadifferenzit*, the newly-invented drug, which is going to do it all. We give the word to our German contemporary and borrow its illustrations.

"At the last moment before the opening of the 'Ala' [this is the General Aeronautic Exhibition held April 3 to 14 in the Zoological Garden buildings.—Ed.] in Berlin a new invention is announced which will interest all readers. The inventor was looking primarily for a cheap method for separating pure nitrogen from the atmosphere. He sought means for influencing the vibrations of the oxygen and the nitrogen molecules which are mixed in the air, in different directions. At ordinary temperatures these molecules swing normally in all directions, as everybody knows. The inventor now found in 'Sepadifferenzit' a substance which—similarly as a magnet turns the magnetic forces in soft iron into definite directions—forces the oxygen molecules to swing horizontally and the nitrogen molecules vertically. And vertical molecular vibrations are accompanied by a great rise in temperature, while horizontal ones cause an equal lowering of the temperature. This peculiar influencing of molecular vibrations is illustrated in Fig. 1.

"If now atmospheric air, at a temperature which for simplicity's sake is assumed to be 0 degree, is exposed to the influence of Sepadifferenzit it disintegrates at once into liquid oxygen of minus 250 degrees C. and hot gaseous nitrogen at 250 degrees C. plus.

"If one were to bring these separated parts together again without further ado they would forthwith combine into ordinary air at 0 degree, which proves that the scheme is all right.



Fig. 1—Translation: (1) Air of ordinary temperature, (2) Oxygen at minus 250 deg. C., (3) Nitrogen at 250 deg. C.

But nothing would be gained by that. On the contrary, the gases must be kept separate and the great difference in temperature between them must be utilized: transformed into

useful work. This is possible by means of a perfectly simple reversal of the functions of an ordinary automobile motor, necessitating only trivial modifications; a proceeding which presents a striking analogy to the reversible employment of dynamos and electromotors. To be sure, the modified motor contrasts in all but looks with the explosion motor we know. It is not the heat which drives the piston down; no, it is a very energetic cold wave which so contracts the contents of the cylinder that the piston is drawn upward with great force. Any single or multi-cylinder motor can be fixed up to work on this principle. The ignition apparatus is dispensed with, of course. A condenser takes the place of the carburetor, to which it bears an outward resemblance, and it is a compact little device. The air is admitted at the bottom, passes by a nozzle, thereby drawing a wee, little drop of Sepadifferenzit from the float, where this substance is stored, and at once separates it into its constituents, oxygen and nitrogen, with the aforesaid differentiation of temperature. The liquid oxygen flows up to the right, very cold, the gasified nitrogen up to the left, very hot.

By a little change in the camshaft, a definite small quantity of liquid oxygen is made to enter into the cylinder where the piston is at the bottom of its stroke, and the air in this cylinder contracts suddenly and sucks the piston upward with vehemence. The downstroke of the piston is effected by the induction of ordinary air so that the cycle of functions may be repeated. As by this simple process a power stroke results at every upstroke of the piston, the power of the new cold-motor is twice that of an ordinary explosion motor of the same dimensions. [It seems a little unfortunate for the promoter that, however sudden the shiver which the alleged liquid oxygen may produce, the piston pressure could not very well exceed that of one atmosphere, since the difference between vacuum and one atmosphere cannot by any stretch be made more than that.—TRANSLATOR.]

"A last and singular reversal of the ordinary order of things is yet to be noted, inasmuch as the cylinders must be protected against freezing up instead of against overheating. The hot nitrogen gas serves this purpose. It is led into the jackets of the cylinders, as shown in Fig. 2, thence to a radiator-like device in front of the automobile and is here, by means of a substance whose composition has not yet been made known, transformed into nitric oxide, a material which, as well known, is much in demand among farmers at ever-rising quotations. This extra revenue is said to cover the entire operating cost, as the consumption of Sepadifferenzit is almost infinitesimal. The contents of the float chamber of a normal carburetor is sufficient for driving 800 kilometers with a motor of 20 horsepower. And the present rather high price of this extraordinary and interesting substance can be lowered much by organized production methods, the inventor indeed predicting that the income from nitric oxide will exceed the cost of running an automobile. Prospectuses of the new enterprise may be had from the Leduc Condenser Company (Leduc Verdichter Gesellschaft), Berlin N. 65, Reinickendorfer Str. 46, or at its exhibition stand, No. 156 Obergeschoss Halle (Overflow hall) II at the Aeronautic Show."

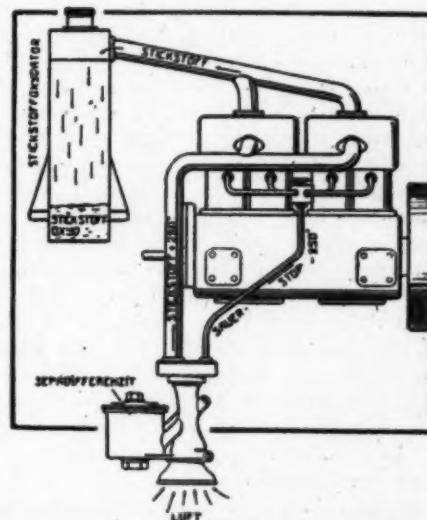


Fig. 2—In this illustration of a Sepadifferenzit motor Sauerstoff means oxygen, Stickstoff nitrogen, Stickstoffoxyd nitric oxide and Stickstoffoxydator a substance or machine by which the latter is produced from nitrogen.

# Digest of the Leading Foreign Journals

## Mere Mathematical Diagram Stirred the Designers, and the End Is Not Yet—Virtues of Offset Crankshaft in Question—Stout Connecting-Rods Whipped to Bits—An Air-Suspension With an Indorsement

**P**ISTON SPEED IN OFFSET MOTORS—A diagram reproduced in *THE AUTOMOBILE*, of April 11, by which it was plainly shown how and why the piston speed in a motor turning at uniform flywheel speed is bound to be higher in the upper portions of the stroke than in the lower, has brought its author in *L'Auto* a number of interested inquiries and communications, confirming in all respects the assumption that this apparently unavoidable irregularity in piston speed has much to do with the difficulties which are experienced in the balancing of high-speed motors and particularly with the so-called thrash which sets in at certain speeds in some motors, in some cases disappearing at certain higher speeds and reappearing in aggravated form when the speed is increased still more. The fact that the variation in piston speed becomes the more pronounced the greater the throw of the crankpin is in proportion to the length of the connecting-rod serves to call attention to the need of lengthening the connecting-rod in the modern long-stroke motor even more than the increased throw would call for, and consequently to the inadvisability of cutting out slits in the lower edge of the cylinders in order to accommodate the movements of a short connecting-rod working with a large throw. On the other hand, as a long connecting-rod weighs more than a short one

and moreover must be made as rigid as the short one by a further addition of metal or by other means, the mechanical complications which arise afford an excellent example for impressing upon the mind the need of extreme care and circumspection in the design and manufacture of the pushed type of automobile motor with long stroke, high speed and relatively small dimensions.

One of the questions suggested is whether one of the new and strong aluminum alloys, by virtue of the rigidity which goes with its greater bulk and dimensions for a given weight, could not be used to better advantage than

the best of steel in the production of connecting-rods combining minimum weight with the extra length found desirable for perfecting the equilibrium of the long-stroke motor.

Another question relates to the offsetting of the crankshaft. *L'Auto* approves of the contention that a suitable offsetting of the crankshaft with relation to the axis of the cylinder reduces the variation in the piston speed and thereby improves the balance of the motor, and thinks that this alleged advantage accounts for the alleged fact that some motors with offset crankshaft give no evidence of thrash at high motor speed, while motors of standard design do. No demonstration is offered, however, in favor of this interesting contention, but designers may easily satisfy themselves as to its correctness or incorrectness either mathematically or graphically. Of complete equalization there can be no question, of course, as piston speed naturally varies from zero at the dead centers to the two intermediate maxima, but the contention is that a suitable offset somewhat equalizes the speed of the upstroke with that of the downstroke.

[It is believed that *L'Auto* is in error in distinguishing between the piston speed of the upstroke and that of the downstroke, as these speeds are equal in a motor of standard design under the accepted assumption that the flywheel speed is uniform. What was shown by the diagram which was reproduced in *THE AUTOMOBILE*, of April 11, was that the piston speed is considerably greater during the upper portion of its course than during the lower—or, more generally, the piston speed is reversed more suddenly at the dead center far from the crankshaft than at the dead center near the crankshaft. The diagram presented herewith, Fig. 1, does not seem to show that any change is brought about in this condition by offsetting the crankshaft. In the construction of the diagram, the data are supposed to be the piston stroke AB, the level of the crankshaft which decides the height of the motor, and the offset CO of the crankshaft, O representing the crankshaft in its offset location. The crank throw is now determined by BO and AO, as BO must equal the length of the connecting-rod minus the throw and AO must equal the connecting-rod plus the throw. By prolongating AO to B<sub>2</sub>, (OB<sub>2</sub> equaling OB), and dividing AB<sub>2</sub> in halves, M is consequently found to be the end of the connecting-rod AM, which is equal to BN, and a circle with OM as radius represents the crankthrow. M and N are the dead centers of the crankpin and are not diametrically opposite. The first observation which suggests itself is thus that the time for the downstroke of the piston is lengthened in an offset motor, and this naturally suggests a number of possibilities with regard to the proper time for the opening and closing of valves. But, with regard to the subject of the variations in piston speed near the upper dead center as compared with the speed near the lower dead center, if the arc MP is equal to the arc NQ, indicating equal portions of a revolution, and the positions of the piston pin which corresponds to the two locations of the crank pin at P and Q respectively, are constructed by intersecting the line AB with arcs drawn from P and Q as centers and with the length of the connecting-rod as radius in both cases, the upper point of intersection R is found to be considerably farther from A than the

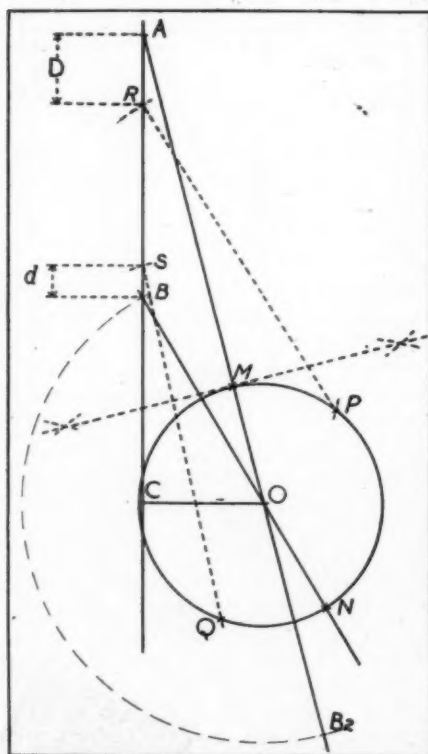


Fig. 1—Design showing that irregularity of piston speed remains in motion though crankshaft is offset

lower point of intersection is from B; the distance D is greater than d, yet must be travelled in the same time. In other words, the piston travel is still, despite the offset, considerably faster near the upper dead center than near the lower dead center, and if any improvement has been effected by offsetting the crankshaft it must be due to other factors. Whether the increased time for the power stroke and the suction stroke and the correspondingly reduced time for the exhaust and the compression involve an improved torque, an improved equilibrium or other advantages, may be a matter open for discussion.—Ed.]

**Whip of Connecting Rods**—The same discussion which forms the subject of the preceding paragraph raised the question if the irregularity of the piston speed which was demonstrated in the original diagram in *L'Auto* and reproduced in *THE AUTOMOBILE*, of April 11, is not accountable for the whip of connecting-rods which has been observed in high-speed motors in several instances although the connecting-rods had been supposed to be amply strong and rigid. Jean Gobron, of the well-known Gobron firm (formerly Gobron-Brillié) reported for example that his house last year had constructed a racing motor in which the connecting-rod passed the edge of the crankcase with a clearance of 8 millimeters, and in the testing of this motor all went well until a speed of 2,200 revolutions per minute was reached. At that speed the connectin-rod snapped, and an examination showed that it had struck the crankcase despite the 8 millimeter clearance. This experience led the firm to undertake a more exact determination of the orb described by a given point of the connecting-rod at different speeds, and a manograph arrangement was rigged up for this purpose. The series of diagrams reproduced in Fig. 2 was the result. The first of these diagrams shows the normal orb of the chosen point, as described when the crankshaft was turned by hand. The other curves show peculiar deformations, peculiar returns to regularity and again new deformations with sudden changes in the curvatures, the whole series apparently indicating the coming and going of rhythmic forces which by turns strengthen or weaken the influence of centrifugality and of the piston pressures. Considering that the majority of other motors operating at the same speed and with the same length of stroke are probably less carefully built than the Gobron motors, it is astonishing, comments *L'Auto*, that the connecting-rods stand up as well as they do.

Another correspondent connected with the design of railway locomotives brings out that exactly the same factors which affect the regularity of the piston speed in automobile motors render it impossible to get the same steam pressure on both sides of

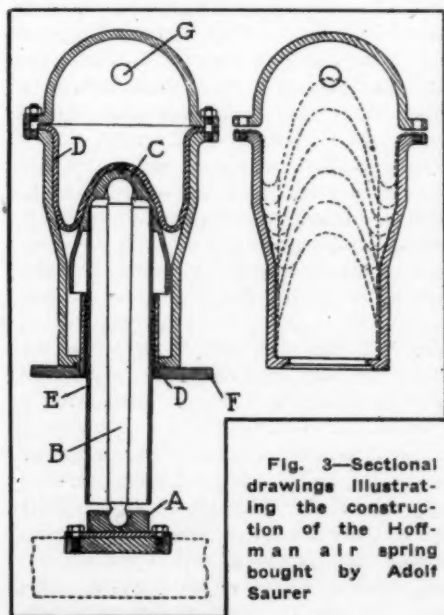


Fig. 3—Sectional drawings illustrating the construction of the Hoffman air spring bought by Adolf Saurer

the piston in an engine known as the Walschaert, in which "the displacements of the slide valve are a function of the linear displacements of the piston compounded with those of the end of a rod controlled by a crank-arm mounted at 90 degrees with the driven crankarm."

**Hoffman's Air Spring**—In attempting to replace the steel leaf springs of vehicles with air springs, the difficulties encountered

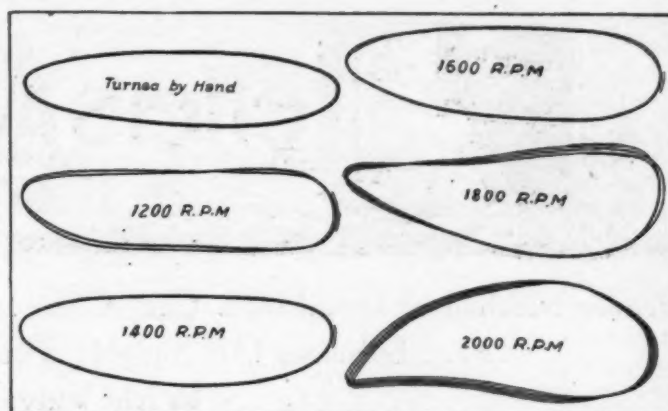


Fig. 2—Irrregular curves described by fixed point of a connecting-rod at different speeds owing to rhythmic whip

have consisted in the liability of leakage and fouling when pistons were employed moving in lubricated bearings; in a too-rapidly rising spring resistance when a small quantity of air was used; in complication, and high cost when a larger quantity was used, and in rapid deterioration of fabrics forming the walls of an airbag when these walls were subject to constant and decisive flexures. Fig. 3 shows a section of the Hoffman air spring and the manner in which the air bag in this construction conforms, under shocks of different severity, with the contours of the piston by means of which it is compressed. The patent for this construction has been purchased by the Swiss manufacturer of embroidery machines and motor trucks, Adolf Saurer, and it is surmised that it will be used for Saurer trucks, perhaps in combination with steel springs and as a means for permitting the use of the same steel springs for vehicles of different capacities. To the vehicle axle is secured the plate A which is formed with a ball socket. The piston rod B is formed with a corresponding ball-shaped lower end, and its upper end is also rounded. It is made integral with the tube E which is arranged to slide in a bushing secured to the vehicle frame F, and the combined piston rod and tube is topped off with a metallic cap C, shaped as a sugar loaf, which impinges against the membrane D the edges of which are confined under the flanges of a semi-spherical dome bolted to the housing of the device. The aperture G leads, by means of a conduit, to an air reservoir and acts as a moderator of the resilient action. The higher the piston is carried upward into the air chamber, the larger becomes that portion of the surface of the membrane D which is supported on the cap C, as indicated most plainly in the second portion of the illustration. —From *Allgemeine Automobil Zeitung*, March 29.

**Impurities in Oil**—By burning lubricating oils to decide how much of residue or ashes they would leave, the Midland Railway Company of England found in 1905 that the incombustible impurities consisted mostly in rust which had come from the walls of the retorts and stills in which these oils had been refined.

During all of July the French War Department will again this year conduct extensive trials of motor trucks with a view to determining the grade scale of subsidies allowed by the French government to owners of trucks which are fit for military as well as for commercial work. The trials are to be conducted from Versailles as a center, and all the vehicles are to be parked there every night under military guard. The list of contestants include at present sixteen manufacturers and seventy-six vehicles.

Among the fifty-seven racing car drivers who will conduct cars in the impending Grand Prix race in France, twelve are licensed pilots of aeroplanes, according to *L'Auto*.



## Proper Method of Cranking a Car; Correct Amount of Front Wheel Toe-In; Sight-Feed Indicates Oil Supply; Timing of Motors; Some Troubles With Valve Adjustments

### How to Use the Starting Crank

EDITOR THE AUTOMOBILE:

I am the owner of a new car and, although it may sound foolish, I am what the old Indian chief would call Young-Man-Afraid-Of-His-Car. Every time I start to crank it, visions of a cracked wrist flash through my brain and I flinch. Can you reassure me as to the chances of danger while cranking a car?

Toronto, Canada.

NEW SUBSCRIBER.

The chances of danger are practically nil if you will take hold of the starting crank in the manner shown at B, Fig. 1, instead of the way shown at A. Always pull up on the crank, never push down. It is even better to always use the left hand. In this way, should a back-fire result you will be unhurt, the crank simply unbending your fingers as it flies back. If you are so nervous as to still be afraid, buy a self-starter or a safety starting crank.

### Determining Negative Polarity

EDITOR THE AUTOMOBILE:

What are the best means at the disposal of one who is not a practical electrician for testing the polarity of a storage battery? I have a storage battery on which the poles do not seem to be indicated in the usual manner with + and - marks.

Wilkes-Barre, Pa.

READER.

There are two very reliable ways of telling the polarity. The first is to dip the wires from each terminal in water, about 1-2 inch apart. Bubbles will immediately begin to form about the negative binding post. The test may also be made with litmus paper. Blue litmus paper is dipped in water and the wires from each terminal put in contact with the litmus paper at a distance of about 1-2 inch from each other. The litmus paper will turn red in the vicinity of the negative terminal. This assumes that the battery is not exhausted. If you will look carefully you will find a mark in the cell close to one of the terminals as they are all marked.

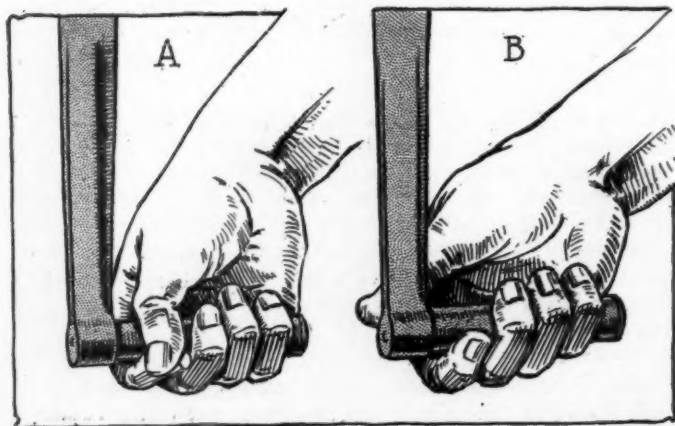


Fig. 1—A, wrong way to take hold of starting crank. B, right way

### Amount of Front Wheel Gather

EDITOR THE AUTOMOBILE:

Please give the amount of gather which the front wheels of an automobile should have. How much play should the steering wheel have, measured at the rim of the steering wheel?

Napoleon, Mich.

L. B. BENTON.

The amount of toe-in, or gather, as it is usually called, of the front wheels should be about 3-8 inch measured from the center of the wheel to the traction point or spot where the wheel touches the ground. If this distance is measured from the top of the wheel to the ground it will be double, or 3-4 inch. Measuring the toe-in at the front of the wheel it should be about 1-4 inch.

The lost motion, or play, in the steering wheel should be about 1-2 inch. This is measured at the rim of the hand wheel and represents a play of about .005 inch between the worm and the gear or sector. More than 1-2-inch play on the steering wheel should be taken up on the adjustment devices provided.

### Information Regarding Packard

EDITOR THE AUTOMOBILE:

Will you please answer through THE AUTOMOBILE, the following questions:

- (1) How can I take care of the paint on a new car?
- (2) What will take the spots away from the paint?
- (3) What is the best self-starter for a Packard 30?
- (4) How can I time the valves on this car?

Washington, D. C.

GEORGE E. STRINGFELLOW.

(1) It would be readily possible to fill a large volume on the care of the finish on a new car, but a few regular rules will suffice to show along what lines the owner who desires to keep up the appearance of the car may work. First, never allow mud to harden on the surface of the car. As soon as the car is returned to the garage, a gentle stream from a hose should be used and the mud washed off. The stream of water should merely flow against the car and should not beat against it. In this way the mud spots are melted from the car and not forced off. If the mud is allowed to dry and become hard on the car, when it is removed, the finish will adhere to the mud more firmly than to the surface of the car and hence come off with the mud. This is the first and most important rule in body care: Remove the dirt at once, but wash it off gently. Never rub the surface, even with a sponge, as the dirt acts in the same manner as emery when this is done and inflicts scratches cut below the polish. If you wish to keep the body of a car in first-class condition, it is a wise precaution to throw a canvas cover over it while the car is in the garage.

(2) It will depend to a great extent on what was the cause of the spots. If the spots are due to the use of a poor grade of soap, they can be partially remedied by the use of a good body polish. If, on the other hand, the finish has been removed completely, a body polish cannot be expected to restore the appearance of the damaged part which will have to be repainted. This work, to be properly done, will have to be undertaken by an ex-

pert with a well equipped shop. Do not attempt to drag the finish over another short period of existence by the use of any such means as linseed, kerosene or cottonseed oils. They are worse than useless.

(3) The Packard people do not recommend any one particular make of self-starter for their cars. Any make is applicable to the Packard car.

(4) The correct valve timing is as follows:

Inlet opens at 10 degrees past top dead center and closes 35 degrees past bottom dead center.

Exhaust opens 30 degrees ahead of bottom dead center and closes 15 degrees past upper dead center.

### Sight Feed Indicates Enough Oil

Editor THE AUTOMOBILE:

Do the cylinders in a splash-feed oiling system get enough oil as long as the pump forces the oil through the sight feed on the dash?

Conkling, Mich.

G. A.

As long as the oil flows through the sight feed on the dash and the motor does not overheat you are getting enough oil through the system. If the sight feed shows oil flow and the cooling water shows a tendency to boil, allowing steam to issue from the radiator cap, the pump is not delivering enough oil. The adjustment to increase the oil supply depends upon what make of car you are driving. A set screw on the sight feed or a by-pass valve at the pump generally control the oil flow, but a knowledge of the make and model of the car is necessary before full instructions can be given as to how to increase the oil supply.

### Trouble with Valve Adjustment

Editor THE AUTOMOBILE:

I have a 1910 E-M-F car which has been overhauled. It ran very well for a time but has recently started to miss when the spark is advanced. When first starting the motor fires well on all cylinders and will carry the spark advanced. After running about 6 miles the trouble develops. I have looked at the contact-breaker, distributor and timer and they all seem to be as they should. I have also tried several air adjustments on the carburetor, put in new plugs and ground the valves, but to no effect.

The wiring is perfect and the engine is not hot when it starts missing, although after running for some time with the spark retarded, it naturally starts to heat up. What do you suggest as the trouble and how may it be remedied?

Lawrenceville, N. Y.

JAMES E. HULLFISH.

Unless, in your manipulations of the carburetor air adjustment, you have not allowed the motor enough air, the trouble is in the valve adjustment. When the motor is cool the adjustment is such that the motor will run well but when it becomes warmed up the expansion of the valve stem due to the heat holds the valve off its seat. The valve adjustment nut just outside the tappet guide should be slacked away slightly so that when the motor is cold a visiting card may be slipped between the tappet and valve stem during that part of the stroke that the cam is not operating the valve. An illustration of how this adjustment is made along with a description of the same was given in the article on How to Put Your Car in Commission, page 717 of THE AUTOMOBILE for March 14.

### Timing of Automobile Engines

Editor THE AUTOMOBILE:

Would you kindly tell me the timing of the Packard, National, Continental and Wisconsin motors and the method employed in laying out the timing of these motors on the flywheel?

New York City.

SUBSCRIBER.

The timing of these motors is as follows:

Packard: As given in another letter on this page:

Wisconsin: Inlet opens 15 degrees past the upper dead center and closes 30 degrees past the lower dead center. Exhaust opens 45 degrees before lower center and closes 10 degrees past upper dead center.

Continental, Model C: Intake opens 11 degrees 30 minutes past upper dead center and closes 44 degrees 12 minutes past lower dead center. Exhaust opens 45 degrees 48 minutes before lower dead center and closes 11 degrees 30 minutes past upper dead center.

Continental, Model E: Intake opens 14 degrees 42 minutes past upper dead center and closes 32 degrees 36 minutes past lower dead center. Exhaust opens 45 degrees 42 minutes before lower dead center and closes 11 degrees 30 minutes past upper dead center.

National: The timing of the National is given in the accompanying diagram. This is a reproduction of the blue print used by the National Motor Vehicle Company in laying out the timing on the flywheel. The print itself is large enough so that it may be laid upon the flywheel of the motor and thus indicate the marks upon the rim. Each cylinder is laid out in the same manner. The piston of the cylinder is placed upon upper dead center and the diagram then laid upon the flywheel so that the upper dead center on the diagram coincides with the top of the vertical diameter of the flywheel. The marks are then made up on the wheel and labeled with descriptive letters. I E O, for instance would indicate that the exhaust of number 1 cylinder was just opening. The dead center positions of the pistons in each cylinder should also be marked upon the flywheel.

### Please Sign Your Inquiries

[The editor of this department is in receipt of several letters signed Reader, Subscriber and by initials. No attention will be paid to anonymous or unsigned letters; readers who wish to make use of these columns must sign their letters as an evidence of good faith. No names will be published if the writer of the inquiry or communication does not wish the name to appear. It is only necessary to state this in your letter. Other letters which have not been deemed of sufficient general interest to publish in these columns have arrived without the sender's address so that it is impossible to answer them by mail. We are delighted to have our subscribers use these columns and most cordially invite correspondence, insisting only on the rules just mentioned.—EDITOR.]

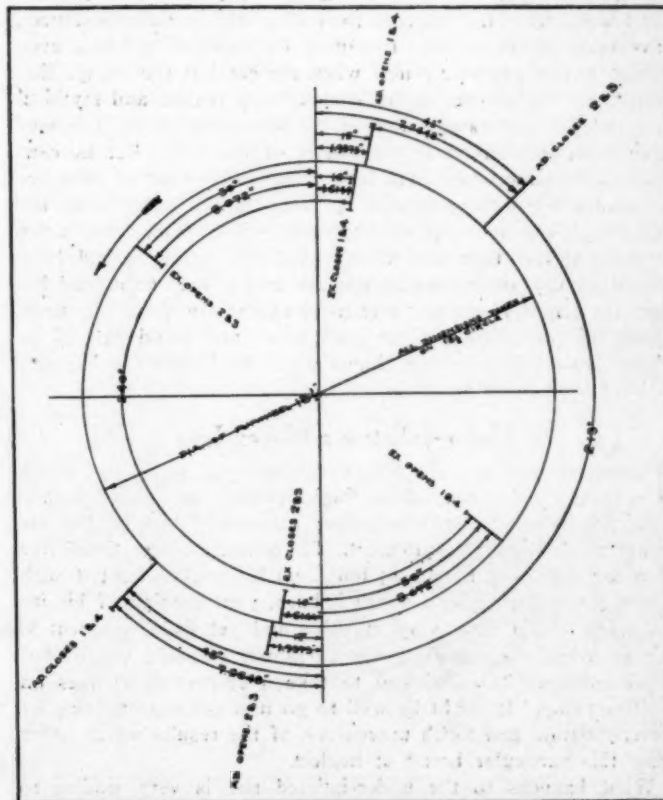


Fig. 2—From blueprint used in marking National flywheels

# Caring for Tires, Wheels and Rims

## Part II

### Care of Casings; Evils of Under-Inflation; What Happens to Rim Cut Tires; Tire Inflation Tables of Prominent Tire Makers; Watching for Surface Cuts in Casings; Repair of Cuts; Storing Spare Tires

**L**AST week instructions on the repair of inner tubes were given along with a summary of the use of some of the quick-detachable, demountable rims. This week the attention of our readers will be directed toward the tire casing. It is the studied care of the tire casing that will enable the economical automobilist to reduce his tire cost to the ideal figure of 4 cents per mile for the set. It is the casing that protects the inner tube and it is the casing that first shows the results of the owner's care or negligence.

A prominent garage keeper who is blessed with more or less of an analytical mind once remarked that he could very accurately determine the character of his customers by a brief glance at the tire casings of their cars. This may be more or less exaggerated, but it does indicate that some people are getting more wear out of their tires than others and whether this comes from ignorance or mere folly does not materially affect the question.

The first question that the motorist who has determined to turn over a new leaf and reduce the cost of automobiling may ask is: "What sort of damage must I look out for; that is, what are the symptoms of approaching trouble?" It is useless to tell a man not to drive on a flat tire. The silent puncture is never found until the car strikes some obstruction in such a way that the occupants can tell from the lack of resiliency that the tire has become flat. By this time the casing will, in many instances, have been cut to pieces. It cannot be repaired, perhaps, even though it was practically new when the car left the garage that morning. The 4 cents per mile looks very remote and mythical in a case of this nature, and yet an inspection of the tire may have revealed nothing at the outset of the trip. Let us consider the common case of a bent front axle. One of the tire companies experimented with a front wheel which was not more than 3-4 inch out of alignment. The casing was worn through in less than 400 miles! Yet this casing would have shown no sign of impending damage had it been examined before the trip. There are certain things which wear out tires. These the owner of the car must know and avoid just as he would avoid eating certain things which he knows are harmful to him.

#### Under-Inflation a Money Loss

**T**hree-quarters of all the tires sent to an early grave in the scrap heap meet their untimely end because they were not inflated up to the proper pressure! Just let the car owner think over that statement. If you were to see the driver of a car carelessly take a \$5 bill from his pocket, light it with a match and then calmly watch it burn, your opinion of his intelligence would drop very quickly; and yet little comment is excited when the same amount of money is being wasted because someone has neglected to take a few extra strokes on his tire pump. It might be well to go into the consequences of under-inflation and touch upon some of the results which occur from this particular brand of neglect.

What happens to the under-inflated tire is very similar to the operation which is commonly resorted to by the person who

wishes to break a piece of wire without the use of pliers or a wire cutter. The car, as it is passing along the road, is constantly moving up and down under the action of the spring. It is easy to picture what is happening to a soft tire while this is going on. The weight of the car causes the rubber and fabric to be kneaded like dough while the heavy casing is rolled this way and that around a bend of very narrow radius. After a very few miles of this sort of traveling the layers of fabric become separated and the tread itself begins to be stretched and pulled away from the rest of the tire. The casing begins to take on a wavy appearance where the tread has stretched so that it is larger than the body of the tire which carries it. A casing which has reached this condition is hopeless. There is no way in which it can be repaired.

#### Bad Results of Rim Cutting

**W**hile the tread is being stretched and pulled out of shape and the layers of fabric pulled apart, the inner tube is also being rapidly chewed to pieces by the edges of the rims being mashed together with the casings between the rims and the ground. After traveling for a day or two in this condition the driver may suddenly awake to the situation and pump his tires to the correct pressure. No doubt he will be painfully surprised when he finds that his inner tube suddenly fails him after a few miles have been left behind. This is due to the number of small cuts that the tubes received while the car was traveling on the under-inflated tire. For these there is no cure after they have once developed, the preventive lying in the vigilance of the person in charge of the car. For the purpose of watching the tires carefully it is necessary to have a reliable tire pressure gauge. There are so many of these on the market that combine the two important features of being both cheap and accurate that there is no excuse for the owner of a car to be without one. It is impossible to tell how much air there is in a tire by looking at it under load, kicking it or using any of the other more or less elementary methods. A tire gauge is necessary.

The first cousin to under-inflation is overloading. The results to the tire are very similar and likewise incurable. Overloading a tire is putting a tax on its strength which it cannot well endure for any length of time without giving out. The remedy that can be applied to this is found in the study of an inflation and loading table for tires.

When the car owner studies the tables and knows just what pressure he should have in the tires on his car his duties are not ended by any means. They are merely commenced. Some tires will stay inflated longer than others. A new tire will not stay inflated as long as one which has been in use for some time. The reason for this is the fact that the oxygen in the air passes through the tire at about ten times the rate of nitrogen. After having been pumped up several times the percentage of oxygen in the tire is very small so that the tire remains inflated for a much longer period. Carbonic acid gas passes through the tire very rapidly and for this reason is not so valuable as it might be. Every motorist should apply his tire gauge to the wheels

of the car before starting out on a trip. In this way he will be safeguarded from the start and will be well on his way toward that 4 cents per mile basis which he should set for himself. These tables vary according to the make of the tire. A few of the tables published by prominent makers are given herewith:

MICHELIN		
Tire Size	Maximum Axle Load	Pounds Inflation
3 inch	600-1000 pounds	50-60
3½ inch	800-1600 "	50-70
4 inch	1300-2200 "	60-75
4½ inch	1400-2600 "	60-80
5 inch	2200-3200 "	70-80

UNITED STATES					
Tire size	Weight per front wheel	Weight per rear wheel	Tire size	Weight per front wheel	Weight per rear wheel
28x2½	275	225	36x4	900	750
28x3	425	350	40x4	1000	850
30x3	450	375	42x4	1050	900
32x3	450	375	32x4½	950	750
28x3½	500	425	34x4½	1125	900
30x3½	550	450	35x4½	1175	935
31x3½	575	475	36x4½	1225	975
32x3½	600	500	37x4½	1260	1010
33x3½	625	525	38x4½	1300	1050
34x3½	650	550	42x4½	1450	1200
36x3½	700	600	34x5	1200	950
30x4	750	625	35x5	1250	1000
31x4	775	635	36x5	1300	1050
32x4	800	650	37x5	1350	1100
33x4	850	675	39x5	1450	1201
34x4	875	700	43x5	1550	1400
35x4	885	735	37x5½	1400	1150
			38x5½	1450	1200

Inflation 20 pounds for each inch of tire diameter, i.e., 3-inch diameter tires have 60 pounds; 4½-inch, 90 pounds, etc.

GOODRICH							
Tire size	Weight per front wheel	Weight per rear wheel	Inflation pounds	Tire size	Weight per front wheel	Weight per rear wheel	Inflation pounds
28x2½	275	225	55	38x4	950	800	75
30x2½	275	225	55	40x4	1000	850	75
28x3	425	350	65	42x4	1050	900	75
30x3	450	375	65	32x4½	950	750	80
32x3	450	375	65	34x4½	1125	900	80
34x3	475	400	65	36x4½	1225	975	80
28x3½	500	425	70	38x4½	1300	1050	80
30x3½	550	450	70	40x4½	1375	1125	80
32x3½	600	500	70	42x4½	1450	1200	80
34x3½	650	550	70	35x5	1250	1000	85
36x3½	700	600	70	37x5	1350	1100	85
30x4	750	625	75	39x5	1450	1200	85
32x4	800	650	75	41x5	1500	1300	85
34x4	875	700	75	38x5½	1450	1200	90
36x4	900	750	75	40x5½	1600	1350	90

FIRESTONE					
Tire size	*Weight per Wheel	Inflation	Tire size	*Weight per Wheel	Inflation
28 to 36x3	350	50	34x4	700	75
30x3½	450	60	36x4	750	75
32x3½	550	60	32x4½	700	85
34 and 36x3½	600	60	34x4½	900	85
30x4	550	75	36x4½	1000	85
32x4	650	75	36x5	1000	90

### Watching for Surface Cuts

AFTER having found that the pressure in his tires is correct, the next step should be a rigid examination of the tire casing in order to detect any surface cuts. It should be necessary only to mention briefly what can happen to a tire if small

\*Car unloaded. For weights exceeding 1000 pounds per wheel, 5-inch tires and larger are recommended, depending on conditions of service.

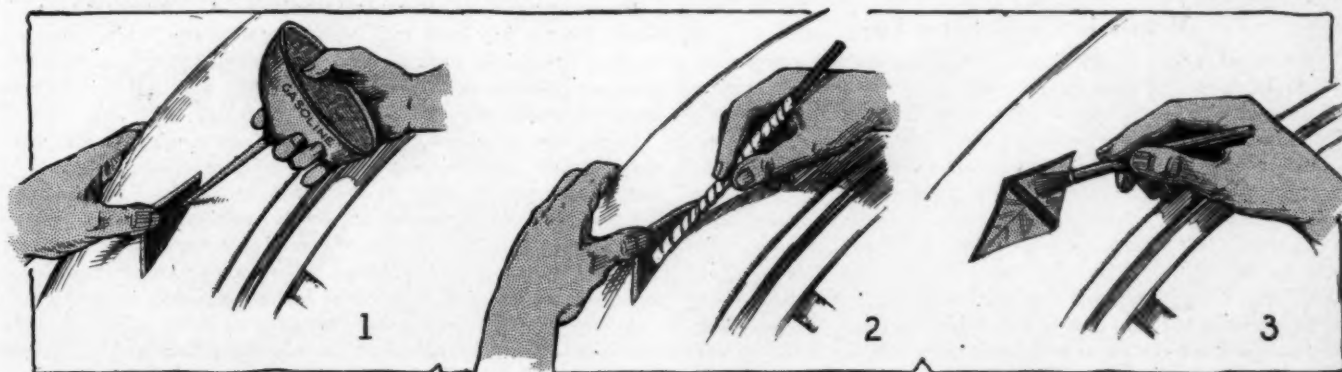
surface cuts are neglected. This ought to impress the need of a little care on the mind of the average automobilist while to those who aim to motor as economically as possible, the warning ought to be particularly impressive. Small cuts in the tire casings are the means of destroying most of the tires which are not ruined by overloading or under-inflation. It is impossible to avoid the cuts because they are caused by small stones, nails, bits of glass and other things which are always lying about the road. They are generally so small that the automobilist cannot see them and does not know that he has passed over them until he finds, on examining his tire casing, that it has been cut. The small cuts in casings do not accomplish their full damage in a short time. It is the after-effects that are most to be dreaded. Sand, mud and pebbles work their way into the opening made by the cut. As the wheel revolves, these objects which are picked up in the cut are pressed further and further into the inner fabric of the casing, gradually separating the rubber from the canvas and disintegrating the casing in the neighborhood of the cut. All this takes a little time, however, and it is well within the power of the automobilist to cure the trouble before it has gone very far.

### Repair of Tire Casing Cuts

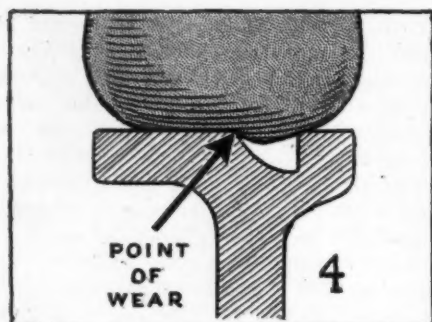
AFTER arriving at the end of the day's run, examine the surface of the tire. When a cut is found, the first step is to clean it. First remove the sand, stones or other foreign matter which has worked its way into the aperture. When this is all removed by means of a splinter of wood or some other instrument of a like nature, the cut can be prepared for mending. Spread the cut open as shown in the illustration at 1, and then permit a drop of gasoline to flow into the opening. A drop will be sufficient. Then, with a rag wrapped around a stick of wood about the size of a pencil, thoroughly wipe the moistened edges and interior of the cut, holding it open as far as you can as shown, slightly exaggerated, at 2. A small stick of wood such as a match may next be inserted in the cut as shown at 3, for the purpose of holding it open while the gasoline thoroughly evaporates. After this, the operator takes a small brush or a stick and coats the interior of the cut with a little cement. This is allowed to stand about 10 minutes. A mastic preparation may then be used to good advantage. It is packed into the cut, being carefully kneaded in so that there are no empty spaces nor bubbles in the mastic. After the mastic has been packed in the cut may be closed with the fingers by pressing the edges together. This will tend to fix the repair firmly, and if allowed to stand overnight, no further trouble should be felt from the cut.

A word about the many meritorious vulcanizing outfits which may now be secured at small cost is not out of place here. The methods in which the vulcanizers are used are explained in instruction books which accompany the outfits. Suffice it to say that the source of heat used in vulcanizing the rubber is generally either electricity, gasoline, alcohol or steam, and the outfits can be readily used in the private garage.

There are other causes for the rapid deterioration of the tire casing than the cut or puncture. These, as a rule, lie outside of the tire itself and come within the scope of the chassis proper.



Three progressive steps in the repair of a cut in the surface of the tread of a tire casing



The misalignment of the wheels have been mentioned. It is a very good plan to test the alignment now and then by measuring the distance between the two inner felloe edges of the two opposite wheels. Revolve the wheels about a half turn

and then measure the distance at the same relative position of the wheel. There should be no variation. If there is, the car should be immediately taken to a garage and put into the hands of a man who is competent to locate and straighten the bent member without doing any permanent harm to the mechanism.

Most of the rapid wear on tires caused by other reasons than those already taken up is from careless driving. Take for instance, the common practice of driving along a trolley track. In Fig. 4 is shown, slightly exaggerated, the result of this particular brand of carelessness. A ridge is worn along the tire because the whole weight is carried on one part of the tread. The point of wear is at the position designated. Similar to this is the practice of driving in ruts. The sides of a casing are not designed to stand the wear and tear put upon them by driving in ruts. If they were, the price of tires would jump up instead of down.

It is ample evidence that the tire has been abused in this manner when the sides of the casing may be seen torn and worn through while the tread is still in very good shape. Quick starting and stopping also claim their share of the tires which are worn out before they should be. It is often necessary to make a quick stop, but it is done more often than necessary. The action on the tire is then very similar to what would occur if the tire was scraped across a grindstone. Advice in regard to this can only lie in one direction: Use the brakes as little as possible and when using them apply them gradually. It is very easy to throttle down the motor before declutching and then to apply the brakes gently.

In regard to braking, it may be well to add that it is important to know that the brake equalizer is working properly; otherwise all the force of braking falls upon one of the tires. Turning corners at high speed will cause just as much damage as putting on the brakes at high speed and then not having the brakes equalized properly. All the weight will fall upon the outside tires.

If a car shows a marked tendency to swing to the side every time the brakes are applied it is evidence that the equalizer is not distributing the pressure equally to both brake bands. The wheel that is gripped more tightly will tend to hang back while the others will travel faster. Thus, if the rear right wheel were locked for instance, and the left brake band did not grip well the car would tend to swing to the right. This could be cured on the adjustment device of the brake equalizer.

#### Where to Carry Spare Tires

Spare tubes and casings should never be carried uncovered. Light, heat and dampness are enemies to tires. Dampness rots the fabric while heat and light cause the rubber to deteriorate. It is easy to see what will happen to a tire that is lying unprotected on the roof of a limousine or tied without covering on the rear deck of a roadster. There is nothing to stop the elements from doing their worst. It is not advised either that the motorist should keep his inner tubes in the box in which they came as the vibrations of running will cause the rubber to be continually chafing against the cardboard. Oil will also soak through cardboard and reach the rubber, doing damage from which they never can recover. Spare tubes should be carried in waterproof bags of the type carried by any dealer in automobile

supplies. A handy bag for this purpose is a coin bag of the larger size used in banks. Waterproof and sunproof covers should be carried for the spare casings. Light produces a chemical change in the rubber which deprives it of its lasting qualities.

Tires that are being stored and are not required for immediate service should be kept in a cool, dark place. A temperature of 50 degrees Fahrenheit has been recommended by many experts as the best. Wrap the tires up in strips of thick, brown paper after having washed them with soap and water and allowed them to dry thoroughly. If the tires are on the car and not likely to be used for some time, the car should be jacked up and nearly all the air allowed to escape from the tires. If about 5 pounds of air pressure is allowed to remain in the tire it will be sufficient to keep the tubes soft and pliable and still eliminate all strain. If the car is left standing on the tires in the garage it would be well to keep the tires up to about two-thirds of the full pressure. The car should be moved occasionally so that its weight does not always rest on the same point.

## Harking Back a Decade

FROM *The Motor Review*, April 24, 1902:

S. F. Edge, noted English motorist, has made a 500-mile run from Glasgow to London with but one stop. The time occupied was 28 hours. He drove a Napier.

Charles M. Schwab recently motored to Philadelphia from New York, 90 miles, in 2 hours and 40 minutes, and continuing 70 miles to Atlantic City, made that stretch in 1 hour and 48 minutes.

The Automobile Club of America, has selected its mile course for the speed trials to be held May 31. The speedway has been laid out on the South Side Boulevard on Staten Island.

Representative Beidler has introduced a bill in Congress to authorize the President to name a representative from each department to attend a Good Roads Convention to which the governors of all the states will be invited. The intention is to hold the convention within 3 months of the passage of the bill.

A Locomobile finished third in the 650-mile tour from Paris to Nice, making the distance in 46 hours.

The contract entered into by the Republic Motor Vehicle Company to carry the mails at Minneapolis has led to a fierce battle between partners in the company. Herman Kenkel has been sued by J. Feelis Linton for \$30,000 damages and Kenkel has made several attempts to throw the company into bankruptcy. The contract for mail carrying failed in its execution.

The Kirk Manufacturing Company, of Toledo has turned out its first automobile. The car is equipped with a pneumatic device to eliminate the jerk incident to starting. The power is applied directly to the shaft and no gears are used. A small electric motor and storage battery are used to do away with the cranking of the engine.

The new factory of the Grout company at Orange, Mass., has been commenced. The company is reputed to have been the first in the United States to build a plant exclusively for the manufacture of automobiles.

In the matter of steam automobiles, American trade with Great Britain has been satisfactory, particularly with such cars as the Locomobile, Reading and Weston types, but has not made much impression with the gasoline cars, which the Britishers state are simply imitations of French design.

Under the construction of the New York law by the Corporation Counsel, automobilists are liable to criminal as well as civil prosecution for violation of the speed law, brake, light and bell law and for breaking any of the clauses of the general law where violation constitutes a greater offense than a simple misdemeanor. For not stopping when a horse driver signals, the automobilist is subject to civil suit only, unless his conduct shall be disorderly.

A Vermont driver recently went over 22 miles of very muddy road and at the conclusion of the run his odometer showed 150 miles. This is thought to be the result of slipping wheels.

# The Ideal Automobile for 1913

*Some of Our Readers' Conceptions  
of What Next Year's Car Should Be*



## Big Equipment and Low Cost

EDITOR THE AUTOMOBILE:

I take much interest in your column "The Ideal Automobile for 1913" and send you herewith a description and drawing of what I consider my ideal car for the coming year. I am an advocate of the underslung type and would prefer a two-passenger car, although the body would be optional. I am also in favor of the heavy car because of its easy riding qualities, and it is much more easily controlled at the various rates of speed which a car might be compelled to make.

As to specifications, I should want a motor of four cylinders of the T-head type cast in pairs, 4 3-4 inches bore and 5 1-2 inches stroke, which would give 36.1 horsepower, S. A. E. rating. I should want a unit power plant and transmission of selective type having three speeds forward and reverse. A multiple-disk clutch having steel friction surfaces would constitute the remainder of the power plant which should have three-point suspension. The carbureter should be a Schebler float-feed with auxiliary air control on dash. Ignition should be obtained by Bosch high-tension magneto and storage battery with hand controlled spark. Gasoline should be fed from 20-gallon supply tank by pressure from pump situated on edge of seat handy to driver. The motor should be lubricated by a gear driven pump and crankcase splash, and cooled by circulating pump and cellular radiator.

The wheelbase should be 120 inches, wheels of artillery type, 12 spokes front and rear, with demountable rims and tires 35 by 4 1-2 inches. The brakes should be 16 inches in diameter with 2 1-2-inch face, the service brake to be the external and the emergency the internal.

The front axle should be of tubular design and the rear semi-floating; springs semi-elliptical, 44 inches front and 50 inches rear. The clearance should be 11 1-2 inches. The steering should be by irreversible worm and gear, with 18 inches wheel, the column being set at a good angle for comfortable driving and to give the proper lines to the car. The controlling levers should be situated above the steering wheel. The clutch and brake pedals should be adjustable to insure comfort to the driver.

The equipment should include top, zig-zag windshield, gas-

## Believes in a Rotary Valve Motor

EDITOR THE AUTOMOBILE:

I have studied with interest the ideal cars of several persons for some time, but on the whole they do not appeal to me.

The motor of my car is to have four singly-cast cylinders with a bore of 5 inches and a stroke of 5 1-2 inches, which is to my mind capable of developing 45 horsepower at 900 revolutions per minute. The valves should be of the new rotary type placed between two cylinders and serving both. The radiator should be of square tubular type with a water capacity of 5 gallons, circulated by thermo-syphon system. The carbureter used should be a Schebler, model L. The current is to be supplied by the Delco self-starting, lighting and ignition system.

The frame should be of channel vanadium steel and the front axle of I-beam type. The clutch should be multiple disk, twenty-one disks being used. The transmission is to have four speeds, placed in a unit power plant of three-point suspension. The rear axle should be of floating type, having 18-inch brake drums 5 inches wide, both sets internal. The tires should be 36 by 5 inch, placed on demountable rims, wire wheels being used. The car should be underslung, with springs 53 inches long and 3 1-2 inches wide. The wheelbase should be 130 inches.

The body should be of fore-door, roadster type, seating two.

The car should be fully equipped, including top with Jiffy curtains, glass front, with Argos mirror, Stewart speedometer with clock combination, two extra demountable rims with tires, three extra inner tubes, robe and foot rails and five electric lamps.

The car should weight about 2,300 pounds and sell for \$1,800. Stamford, Texas.

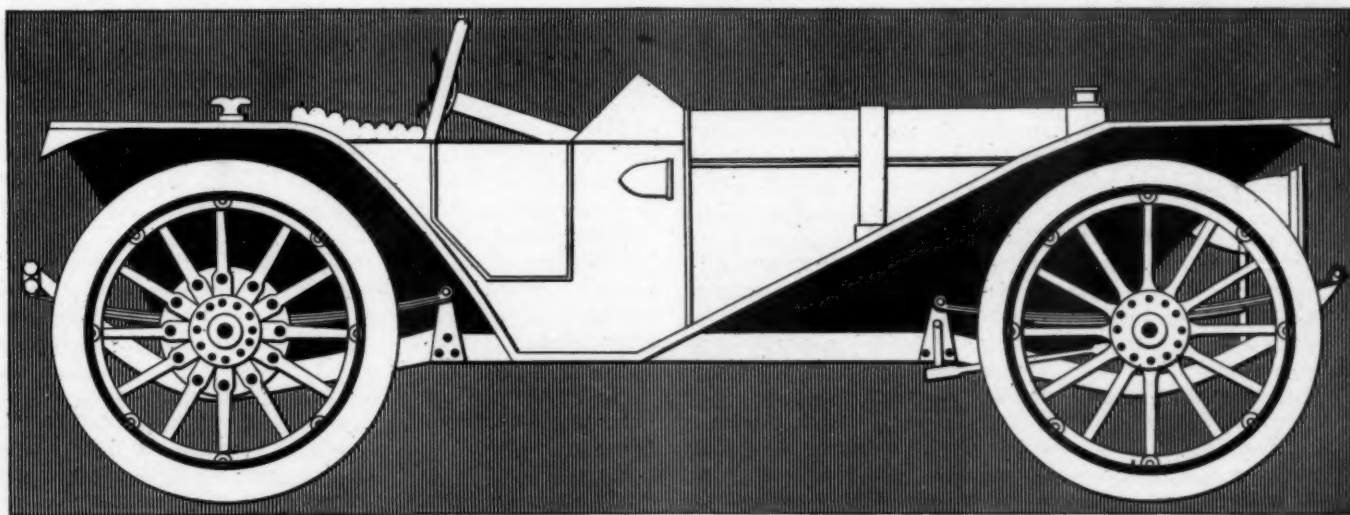
WILLARD D. MCRIMMON.

electric headlights, electric side and tail lamps, Prest-O-Lite tank, Gray & Davis dynamo, complete tool and tire repair kits. The tool box and Prest-O-Lite tank should be placed inside of the frame.

My idea is to have a car of plain, straight-line type, well built, one that will stand good usage and cost around \$1,700 or \$1,800, which, I think, would make a good average car.

Deerfield, Ill.

H. FROST.



Right side view of the 1913 Ideal car as sketched by H. Frost, Deerfield, Ill.

# Protecting the Truck Against the Elements

## Importance of Proper Painting and Finish in the Preservation of the Commercial Vehicle

### How the Work Should Be Done and the Materials That Should Be Used

**P**AINTING and finishing the motor truck offers a problem somewhat different from that encountered in painting the pleasure car. The truck owner has a right to expect at least reasonable durability of the paint structure along with enough of the ornamental and advertising features to make his investment profitable outside of the mere commercial resources of the horseless burden-bearer.

The motor truck, for the most part, is not a thing of beauty nor will it last forever, although it may be acknowledged that good paint and varnish will do much toward making it wear to the limit of which wood and metal are capable. The painter can contribute to an important extent in making the truck neat and attractive even though the style and design of the average truck do not admit of a class of painting that will reduce very greatly the angularity of lines or minimize the rigid curves and corners. However, the truck is not intended to display the grace and fashion of the pleasure automobile, and the people among whom it moves and has its being are looking for certain definite performances rather than for picturesque raiment.

What the motor truck owner, then, is chiefly concerned with is a style and kind of painting which, while serving certain well-defined advertising purposes, likewise affords the truck in general an adequate measure of protection from the elements.

The first requirement in the standard of good motor truck painting, vitally important alike to the truck owner and the truck painter, is durability; and durability is, first of all, founded on the elasticity of the coats used to build up the paint structure.

The truck is composed of metal and wood, and in some cases perhaps all metal, and in either event the requirements suggest a primer suitable for the wood parts and one suitable for the metal. Metal affords no such power for absorption as does wood, for which reason the metal primer should not carry a like percentage of oil. With perhaps 25 per cent. less raw linseed oil in its composition, as compared with the wood primer, the metal primer will naturally over a metal surface, as such surfaces go, yield practically the same ratio of elasticity that the wood primer does over the wood surface. The metal surface is by nature a negative one, and the primer put on it must dry and harden on direct exposure to the air instead, as in the case of the wood surface, of drying with a considerable proportion of its body absorbed by the wood cells and pores.

### Importance of Priming Coat

**T**his explanation is due in order to reach a fair understanding of what may be expected of the two classes of primer, of what they should be composed and how they should be used.

For metal, in consideration of its negative property above noted, the primer, with its raw linseed oil base and carrying enough pigment to give a fair body to the coat, will give the best service if shop-prepared. The pigment for such a primer had best be prime quality white lead shaded to a slate color with lampblack and beaten smooth and fine in the kettle. By virtue of its unsurpassed filling up and surfacing qualities white lead is a model pigment to use in connection with linseed oil for primary surfacing coats. For a shop-mixed primer having all

the elements of strength, elasticity and excellent surfacing qualities upon either metal or wood this combination of ingredients is recommended.

There are numerous metal and wood primers, ready prepared, being marketed today which are giving entire satisfaction, and are made up in a way to permit of rapid painting and finishing without the loss of durability or of other desirable features.

Having cleaned the truck of all grease and other deleterious substances, using, among other things, for this purpose one part crude oil and two parts turpentine, and wiping dry with cotton waste or with burlap fabrics, let the surface be roughened up some, if possible, with coarse sandpaper, after which dust off thoroughly and apply the primer, using for the work a soft-point, chisel-shaped bristle brush.

Give the priming coat plenty of time to dry, for upon this all the life and the real worth of the painting depends.

This same admonition holds true in the work of repainting, the primer being invariably and for all time the key to the situation. For all old work, of course, the primer should carry a diminished percentage of oil, such surfaces being incapable of taking up the amount of oil which the average new surfaced requires.

Having the primer in place and properly dried and cured out, whether upon the new surface or the old, the next step consists in getting the second surfacing coat on. If the shop-mixed lead pigment is being used for the first or priming coat it is only necessary to split the quantity of oil used in the first coat in half, add a little more pigment, and whip the mass to a working consistency with turpentine.

### Putting On the Second Surface

**I**f a ready-to-use pigment, the maker may be depended upon to arrange for the proper proportion of ingredients. Having this second coat, properly enough called the filling coat, on the surface and well-cured coat, all the cavities and rough parts should be stopped up and made smooth with hard-drying putty. For the larger or paneled surfaces about three coats of roughstuff should be applied and, in due season, rubbed down with water and artificial pumice stone.

Other parts of the surface which, by reason of conformation and style, do not require the smooth and level condition of the flat panel work, may have the putty sand-papered and rounded up with another coat of surfacer, the percentage of linseed or other oil in this third coat being still further reduced. Make the coat contain, say, one part oil to five parts turpentine, thus providing for the necessary elasticity and the balance which the whole fabric of coats are in absolute need of.

Next sandpaper very thoroughly this foundation, practically made up of sandpaper coats. Then apply the first coat of color, following either with a second coat of flat color, or with varnish color, as local circumstances may suggest. Fetch the surface along in proper sequence with a coat of clear, or nearly clear, rubbing varnish which coat when dry may be rubbed with water and pulverized pumice stone, cleaned up carefully, and lettered and ornamented agreeable to the order and taste of the owner. Over this ornamental work and lettering apply one good coat of rubbing varnish. When dry this coat will need only a little rubbing with water and pumice stone flour to knock off the gloss of the varnish, and fit it to receive the finishing coat, which should be a non-spotting, quick setting up, but thoroughly elastic body finishing varnish.

In the case of the motor truck equipped with a built-up wood paneled top the finish here outlined will have to be elaborated sufficiently to include at least two primary coats, and from four to six coats of roughstuff, with an extra coat of rubbing varnish to cap the climax.

No better way to insure the durability of the painting on the motor truck, granting that none but trustworthy material is used, exists than that of laying all the primary coats—all the coats, in a word—smooth and sleek, and in case of the sandpaper and rubbing coats surfacing them down to the finest possible measure of smoothness and levelness.

When this is done upon the rough coats, otherwise known as

the surfacing coats, it removes the necessity of stripping the rubbing varnish coats down to a point of weakening them, a practice which should never be indulged in. All the rubbing to which the varnish coats are subject should consist of simply removing the gloss of the varnish and nipping off the dirt motes and knobs accumulated during the process of varnishing or before the varnish after application has set up free from dust.

This method provides a structure of varnish for the protection of the paint and color coats of practically full strength and gives the entire finish a life and buoyancy, and a power for wear and tear which it could have in no other way.

In the matter of colors for the motor truck there is no hard-and-fast rule. It is all very largely a matter of individual choice, this choice naturally being governed somewhat by what one's neighbor or business rival may have selected. At any rate, there is a wide range of colors suitable for this class of work, all of them being fashionable, as fashion goes, and most of them under reasonable conditions being durable.

The browns and greens and blues and reds and yellows and grays, and intermediate pigments almost without number are, for the most part, fast and good colors, and if used under the provisions described above they will make neither the truck owner nor the painter ashamed. Provide ample security and protection for these colors, and give the truck the attention and the regular cleaning which it deserves—then expect and exact the service which the finished surface should give.

### Proposes a Carpet for Roads

A lecture was recently delivered by a member of the road board before the Royal Institution of London on "The Road, Past, Present and Future." The lecturer said the problem was to find the best mode by which a road should be constructed so that its surface would not be broken by traffic, so that the transit might be easier for both passengers and goods, a road which would neither form puddle holes nor create dust. One thing was universally recognized, that the road of the future should be a truly bound road in which, whatever kind of stone was used, the stone would be held together so that it would form a crust.

The lecturer suggested that what he called a carpet or an elastic skin should be adopted as the covering. The carpet, he thought, should be made of bituminous material, according to the nature of the traffic. It should go on in liquid form, solidifying quickly, but always remaining resilient and compressible, and so integrating with the crust of the road that there could be no shifting of the surface below no matter to what sort of weather it was subjected or how heavy the traffic was over the road.

The advantage of such a carpet would be to permanently protect the crust, and just as a carpet on the floor softens the step so would this carpet for the roads silence the noise and reduce the shock of rolling vehicles. It was admitted that the original cost of a road so laid would be more than that of a mud-bound road, but spreading the cost over a series of years it would probably not be so great, since the crust of the road itself would not have to be renewed.

### America's Trade with Serbia

The tendency toward direct commercial relations between the United States and Serbia is steadily developing, stimulated by the advantages which such trading presents and which the Servian importers are not slow to appreciate. Though early in the year, a relatively large number of orders has come here from that country, indicating that the volume of direct trade between the two countries during the present year will greatly surpass past records. A great portion of this year's orders is for goods hitherto exclusively imported from other countries than the United States.

## Reasons for Failure in Pneumatic Tires

### Only 37.1 Per Cent. of Damaged Covers Due to Normal Wear and Tear of the Road

#### 56.3 Per Cent. of Inner Tube Casualties Traced to Owner or His Employee

THE Continental Works, in Hanover, Germany, have made numerous experiments to determine why pneumatic tires give out, and the results of their investigations are as follows:

##### Defective Covers

- 17.3% by reason of running slow with too little air in the tire.
- 3.5% because of rusty and battered felloes.
- 1.5% by cutting of the cover strip through insufficient screwing up of the wing nut or screw, so that the cover can slip round the felloe.
- 1.8% on account of too sudden braking, rubbing the tire through in some place.
- 0.2% by contact with oil and other fatty substances, which, as is well known, will spoil rubber.

24.3%

Of the other 75.7 per cent. we have as follows:

- 29.4% were punctured by nails, stones and pieces of iron.
- 4.3% showed only slight injuries and cuts, which were readily mended.
- 4.9% had severe injuries ruining the upper linen inlay.

38.6%

The last 37.1 per cent. of tires were simply worn out or rendered useless by normal causes.

The entire number thereof may be considered as having failed for the following reasons:

- 24.3% by fault of the owner of the car.
- 38.6% from abnormal causes.
- 37.1% from normal wear and tear.

100%

This shows about one-quarter of the entire number of failures of tire covers are due to the fault of the owner or his chauffeur.

In regard to the inner tube, the following has been shown to be the cause:

##### Defective Tubes

- 13.0% crushed in assembling.
- 7.2% rubbed through by improper assembling, or by sand or small stones in the tire.
- 9.5% by faults in assembling.
- 6.8% from driving without sufficiently filling with air.
- 5.8% by injury from rusty and deformed felloes.
- 4 % by injury from defective valves and improper handling of the valve.

56.3% from fault of the owner or his employee.

The other 43.7 per cent. defects were owing to normal and external conditions.

### Plan to Boom European Touring

DETROIT, MICH., April 20—To stimulate European touring, the Packard company has launched an innovation in connection with its Paris branch. A number of 1912 models are being shipped to France to figure in a novel renting plan.

It is proposed to relieve the American of all responsibility in connection with the car. This will dispose of handicaps and annoyances which have deterred many American motorists from taking their own cars abroad. The plan was suggested by Packard owners who complained of the many difficulties encountered in getting through the red tape of Europe.

The rental method frees the tourist of all official entanglements. It avoids the expense of crating and shipping cars across the ocean on the voyage over and return. It relieves the traveler of the necessity of making customs arrangements at the port of entry and at every frontier. The indemnity insurance is provided for and the marine risk is eliminated. Driver's licenses are arranged for in all countries included in the itinerary.

# Industry Partly to Blame For Lack of Freight Cars

—  
**W. K. Vanderbilt, Jr., Says Consignees  
Were Unable to Accept Cars Owing  
to Lack of Cash**  
—

**Nearly 50,000 Cars for Automobile Shipping Now in  
Use or Building**  
—

**F**REIGHT congestion, particularly as it applies to the automobile industry, has shown continuous progress toward normal since the first of this month. Shipments are moving along at present at approximately normal speed, but the strenuous conditions imposed upon the trade during the continuance of the recent blockade have resulted in a concerted protest by manufacturers against the possibility of recurrence in the future.

There are three angles from which the situation is viewed: First, that of the manufacturer; second, that of the railroad and third, that of the distributor.

The manufacturer, realizing the weather and traffic conditions and cognizant of the extra demands that have been made upon the terminal and transportation facilities of the railroads, still asserts that more available cars furnished by the railroads would go a long way toward correcting conditions.

The railroads, acknowledging the shortage of facilities and pleading the unprecedented weather to account for the congestion of traffic, state that the industry is in part to blame because of failure on the part of local agents to take freight promptly, thus tying up rolling stock.

The agent holds that he is not to blame if an unusual number of cars suddenly released by the railroad companies are dumped upon him the moment a freight blockade is broken because he does not unload them.

W. K. Vanderbilt, Jr., vice-president of the New York Central Lines, brings the matter to an issue in a recent letter covering the whole subject of automobile shipment. He says:

"The bulk of the automobile business moves from January 1 to May 1 and during the first 3 months of this period the agencies to whom the machines are shipped do not take prompt delivery. As an illustration, on April 1 we had unloaded on our piers in New York City alone, in order to release equipment, 300 automobiles which consignees were unable to accept, largely for the reason that they were billed to order with sight draft attached to bill of lading, and the agents to whom the machines were consigned were not able to advance the cash to pay for them until practically the day they were sold to customers. At stations where we do not have special facilities for unloading in this manner the delay in acceptance of machines by consignees results in the tying up of equipment, and even though they are able to make payment, they oftentimes are prevented from accepting delivery on account of lack of storage facilities."

## 300 Cars Surplus Over Normal

Inquiry at the New York Central freight terminal in New York developed the fact that ever since freight has started moving in volume this month there have been numerous instances where large numbers of cars have been unloaded, as stated by Mr. Vanderbilt.

No agencies in New York would admit that cars consigned to them were included in the number alleged by Mr. Vanderbilt, but the general opinion was stated that if 300 cars were unloaded on the piers, it would not carry any special significance. There are sixty active automobile consignees in New York and the average of five cars to the consignee would not represent any

unusual number to be received in a day of the high-pressure selling season. The conditions referred to by Mr. Vanderbilt cover the crux of a terrific freight congestion and the 300 cars he speaks of probably represent the surplus over normal business of weeks.

The number of automobile freight cars is a pertinent question in the industry. Cars with 7-foot doors opposite to each other are of small value to automobile shippers. In order to be available, cars for automobile shipment should be at least 40 feet long and equipped with doors at least 8 feet wide, staggered against each other so that loading and unloading may be accomplished with economic facility.

The list of cars designated by the railroads as automobile cars is much larger than the actual number of cars that are available for use under the limits referred to above, the figures showing that the railroads claim to have in the neighborhood of 50,000 cars, while the actual list shown below indicates 40,365 usable cars.

It was only a few years ago, in fact, prior to 1907, that the average daily mileage of freight cars was 8 miles. Owing to improvements in handling, loading and operating this average is now about 30 miles a day.

Automobile cars in service and building, owned by the various American railroad companies

Boston & Maine.....	550	C. & N. W. ....	1,900
N. Y. N. H. & H. ....	420	C. M. & St. P. ....	850
B. & O. ....	2,740	C. R. I. P. ....	2,800
D. & H. ....	180	Frisco ....	800
D. L. & W. ....	315	Great Northern .....	2,000
Erie ....	1,900	Illinois Central .....	300
Lehigh Valley .....	320	Soo. ....	100
N. Y. Central Lines.....	12,200	M. K. & T. ....	400
P. R. R. ....	750	Northern Pacific .....	280
C. & H. & D. ....	500	Southern Pacific .....	500
Grand Trunk .....	2,000	St. L. & S. W. ....	750
Pere Marquette .....	500	Union Pacific .....	800
Wabash .....	750		
Ann Arbor .....	100	Total.....	40,365
Southern Section .....	300		
A. T. S. F. ....	1,800	<b>Now Building</b>	
Can. Pac. ....	200	N. Y. Central Lines.....	2,500
C. B. & Q. ....	1,600	Wabash .....	750
C. G. W. ....	160	C. R. I. P. ....	950
C. & E. I. ....	200		
C. M. & P. S. ....	1,400	Total.....	4,200
		Grand total.....	44,565

## What the Manufacturers Say

The position of the manufacturers is defined in the following excerpts taken from letters in response to a request from THE AUTOMOBILE:

Col. Charles Clifton, Pierce-Arrow Motor Car Company:

"With such a winter as we have had and with so much congestion as there has been among the railroads it would not seem very unusual, if, when the clean-up came, there should be a very large number of automobiles consigned to New York delivered within a short space of time. When the backward spring is taken into account, such a condition is not to be wondered at. I believe these factors are much nearer the truth than anything involving overproduction."

George W. Bennett, Willys-Overland Company:

"An ordinary 40-foot car is not much good unless it has 8-foot doors or staggered doors, and it has been that type that has been short this spring. Terminal facilities at Detroit are entirely inadequate to the present automobile situation and the companies there have been unable to handle all the cars they have been able to get. The congestion was not so marked west of Toledo. The railroads can do much toward rectifying the existing condition by building more automobile cars and improving terminal facilities."

F. B. Stearns, F. B. Stearns Company:

"We have not suffered materially in getting cars at Cleveland and drafts attached to our bills of lading are paid upon presentation."

Roy D. Chapin, Hudson Motor Car Company:

"Authentic reports that have come to us show that a considerable number of automobile freight cars have been loaded this past winter by the various railroads with many other kinds of merchandise. It is not an expensive matter for the railroads

to put in a wide enough door in all their future freight cars, so that automobiles can be loaded in every box car that they build hereafter. If they would do this, it would help greatly to prevent such a serious shortage situation as we have been through the past winter."

W. E. Wright, Knox Automobile Company:

"There were no Knox cars in the 300 automobiles unloaded April 1 on the pier of the New York Central. We only build and ship on legitimate orders and have experienced none of the troubles referred to. It is easy for a manufacturer to determine what number of cars he will attempt to make, but very few can anticipate the number that can be conveniently sold."

Walter C. White, White Company:

"Reports from the South bear out to a certain extent the information conveyed by THE AUTOMOBILE that, in addition to the congestion in handling freight, there is a certain congestion in securing acceptances of freight on the part of consignees. This applies to the cheaper cars. In our own line we have met with nothing of the kind as we only ship on direct order where the dealer is prepared to lift the cars at once. Of course, there are times when a dealer may hold a car up for a few days or a week, but such events are exceptional. Where the necessity exists to manufacture steadily during the winter in order to complete the factory allotment, contracts are often made for winter delivery to agents and shipments are sometimes made to agents regardless of whether they can handle them or not. I assume that cars so consigned might stand on the track until the agent was able to lift the bill of lading. Storage at the factories would be a pretty big job for manufacturers of such cars and the problem of making delivery in the rush season would require immense facilities and undoubtedly would aggravate freight congestion. As the business gets more settled and the demand and supply on these cars become more evenly balanced, I believe the matter will straighten itself out very largely by the companies that have such large outputs being forced to put in storage places at different shipping points and make deliveries from their own warehouses instead of using the railroad company for a warehouse."

### Cars Were Unloaded Quickly

C. A. Emise, Lozier:

"We have had the greatest difficulty in getting cars during the past 90 days to take care of our shipments. Practically every shipment we have made in the past 4 months has been followed by tracers at the request of consignees and, except in one or two instances, cars have been unloaded the moment they have been placed at the unloading platforms. In the exceptional cases the delay has been only a day or two at the most."

Since April 1 the unanimous report from New York City's gasoline row has been that business is on a high-tension basis. Unseasonable weather has held back deliveries to customers in some cases and cars sold as far back as January are being delivered with a rush. There is not a standard house on the row that will admit having any stock on hand and the universal statement is made that the demand of the New York public for automobiles is greater this spring than ever before.

The dealer's reply to Mr. Vanderbilt is, that, while 300 automobiles have been unloaded on the New York Central piers April 1, they did not stay there long. Several of them expressed the wish that another such surplus could be uncovered almost any afternoon.

SYRACUSE, N. Y., April 20—Within the past few weeks a number of agents here connected with Detroit automobile factories have visited the plants in that city to confer in regard to the freight car shortage, which has affected dealers in this city as well as generally elsewhere. They returned with the information that so many companies are shipping from Detroit that the railroad companies cannot supply the demand for freight cars, and they were told that a number of concerns adhere to their determination to remove from Detroit unless the trouble is corrected.

## Conditions Improved at Toledo and Indianapolis

### Congestion at Former Place Was Greatest Ever Known—14,000 Cars Tied Up at One Time

#### Railroad Companies Now Asking Makers If They Can Use More Cars

TOLEDO, O., April 20—Automobile manufacturers here are finding but little difficulty at the present time in securing plenty of freight cars necessary for the handling of business.

C. W. Eggers, traffic manager of the Willys-Overland company, in speaking of shipping conditions, said: "Conditions have been fairly easy in our transportation department during the past week. We have had a hard winter and our difficulties were increased nearly 100 per cent, owing to railway yard congestion and bad weather conditions. The congestion in the Toledo yards was the greatest ever known here and at one time there were 14,000 cars tied up. By persistent effort this has been gradually reduced until there are now about 3,000 cars on Toledo tracks. These cars are being held for Detroit connections over northern routes. The transportation difficulties, while they have worked a hardship on Toledo manufacturers and shippers, did not originate here. The entire trouble outside of weather conditions was caused by lack of terminal roads and yard room at Detroit. The greatest difficulty has been experienced with the Pere Marquette and Michigan Central, northern roads. There has been some difficulty on the eastern routes also owing to the extremely bad weather causing cars to take twice as long as usual in making their scheduled trips."

Relative to the same subject H. C. Kreps, office and traffic manager of the Ohio Electric Company, said: "There is a scarcity of cars, but it is not serious and to the best of my knowledge our agents make it a practice to unload cars promptly. We also make it a point to send special requests to the agents of delivering lines asking them to reload cars with such material as is calculated to get cars back with as little delay as possible. The Santa Fé route during the past winter has experienced the worst difficulties in its history."

#### Railroads Now Seeking Freight

INDIANAPOLIS, IND., April 22—The shipping situation has cleared up very materially in the Indianapolis territory in the last 3 weeks. Where it was almost impossible to get cars a few weeks ago, the railroad companies are now asking the various motor car factories whether or not they can use additional cars. There is little complaint from local manufacturers that agents hold up cars by not unloading promptly.

W. M. Young, traffic manager for the Nordyke & Marmon company and chairman of the Indianapolis committee of the National Association of Automobile Manufacturers, says the shipping situation has shown much improvement in the last 3 weeks.

"There are plenty of cars now," said Mr. Young. "I have been keeping in close touch on the freight car question with other motor car factories in this territory, and they all report plenty of cars available. A few weeks ago, however, it was difficult to get cars."

"It is only rarely that an agent holds up a car by not unloading promptly. Such instances are only where the agent is not prepared to take up the accompanying draft upon the arrival of the car. Otherwise the cars are unloaded promptly. We trace all carload shipments, and usually notice of the arrival of the shipment reaches us on the same mail with the draft."

## A. C. A. to Meet on May 1st Will Decide the Several Matters in Dispute Between the Club's Factions

MAJORITY and minority reports from the special committee of the Automobile Club of America have been submitted under date of April 20 and will be presented to a special meeting of the club May 1.

The dispute in the club was brought to a climax in January when an agitation was commenced to have the by-laws of the organization changed so as to prohibit the solicitation of proxies and for a definite accounting of the expenses of the club to the various departments to determine whether the garage, shop and store were really run at a profit or, as the protesting members of the club asserted, at a considerable loss.

The petition for a special meeting to consider these subjects was laid before President Sanderson and he issued a call for February 19. At that time a special committee was named to consider changes in the by-laws.

Five matters were considered in each report, the same being the subjects to take up which the special meeting of February 19 was called. They are as follows:

FIRST, the adoption at such meeting of a resolution against the solicitation of proxies by the board of Governors or through any committee appointed by the Board.

SECOND, the election at such meeting of a special committee of active members of the club with power to take such steps as it may deem necessary or advisable to preserve the club as a club in accordance with its objects and traditions and to prevent it from becoming a mere business corporation with the power of self-perpetuating its management vested in a mere majority of a board of governors or of a small executive committee.

THIRD, the election at such meeting of a special committee with power to investigate and report by circular to the members or at the next annual meeting of the club whether or not the business departments of the club are being conducted without loss to the club or whether and to what amounts the dues of members have been or are used to make up losses resulting to the club through any of its purely business operations.

FOURTH, to consider whether any and to what extent the dues from members, which amount to about \$100,000 per annum, shall be expended to make up and pay the loss resulting from the operation of the garage as heretofore conducted.

FIFTH, to consider the general condition of the affairs and activities and future of the club and its welfare and to express such opinion, make such recommendation or take such action with respect thereto as may to such meeting seem best.

The majority report, signed by Henry W. Taft, chairman, reports that under the first head, the solicitation of proxies is not illegal in New York. Under clause 2, no report is made, on account of the appointment of the special committee.

### Expense Should Be Apportioned

As to the third and fourth heads, the report states that the club accountants showed expense items for the last 10 months of 1911, amounting to \$144,484. Nearly \$60,000 of this amount consists of fixed charges on real estate; itemized as bond interest, taxes and other permanent factors. The report does not favor the allocation of this amount on account of the close association of the various branches of the club. With regard to the remainder of the expenses, about \$75,000, the committee recommends that it be apportioned to the various departments. It holds that the large investment made in the business departments was not for the purpose of making a profit for the club, but was to provide garage facilities for members.

The fifth subject is not reported upon, on the grounds that it was not required by present conditions.

The minority report, signed by Robert Lee Morrell and Alfred Ely, states that the solicitation of proxies by the Board of Governors is in bad taste and never used in the best clubs. A mail referendum on the resolution as stated is recommended.

The recommendation of the majority as to the desirability of apportioning expense to the various departments is concurred in by the minority, but the report goes considerably further and takes up the allocation of the fixed charges. It states that according to the report of the accountants a net profit of about \$95,000 was made from business operation during the period covered. The minority sets out the fact that without distributing the fixed charges the condition would be similar to that of a

competitive merchant who had the advantage of operating in a store for which he was charged no rent, taxes or insurance. The report states that 86.3 per cent. of the floor space of the club plant is used for garage, store and shop and that about the same proportion of general and office expense should be charged against the \$95,000 net profit. These two items would amount to about \$110,000. The minority does not claim that all of the factors in either item could be allocated with exactness, but does assert that a system of vouchers could be used to make the accounting much more exact and that the period in question could be submitted to the present club accountants for analysis. The report recommends that a charge of 32 cents a square foot be made against all the business departments and that as much of the general expense as possible shall be apportioned.

## New Zealand a Good Car Market

E. W. Relph, general manager of the New Zealand Farmers' Co-operative Association of Canterbury, Lt., claims that in his own province there are 7,000 farmers, all of them prosperous and good live automobile prospects. New Zealand is ideal for the motor car, he says, because it has the finest roads in the world. Each county has its road board. Every season the work is laid out and the expense assessed pro rata on every farmer, according to the value of his estate. In addition the government grants a subsidy equivalent to the total amount of the assessment for each county.

"We have to import a great majority of our products," said Mr. Relph, "and one of our chief duties in America is to investigate the routing and freight conditions. There is no national prejudice against export products. The export trade of our association with England last year amounted to less than £500,000; with your country it was over £1,000,000. Most of the automobiles used are of American make. There will be a great many sold in the next few years."

## The Central American Outlook

INDIANAPOLIS, IND., April 20—The importance of Central America as an automobile center is well brought out by Milton Kraus, president of the Great Western Automobile Company, who recently made a trip through that country and who brings news of the tremendous advances made by the automobile and calls attention to the fastidious buying public in those sections. In speaking of the matter, Mr. Kraus said:

"During the last few months great numbers of automobiles were being exported to South America and Central America. I find that there have been some automobiles exported from this country, but the shipments are all recent ones, as is shown by the

## How R. F. D. Motor Wagons Pay

PORTLAND, ORE., April 20—Recently a test was made on one of the R. F. D. routes in Oregon to see how much more efficient as well as economical was the automobile in place of a horse and wagon. The car which made the test was a runabout. The distance was 26 1-4 miles and the run was made in 2 hours and 35 minutes, making 125 stops. The motor was never stopped from the time it was started in town until the car was placed in the shed after the run. The cost of gasoline and oil for this trip was about 22 cents.

The R. F. D. carrier who has been covering this route has been compelled to keep two horses at a cost of about 60 cents a day, and it usually took him about 6 hours to make the run with one horse and wagon. He sees now that by using an automobile he can have 3 hours a day extra time, during which he expects to use his runabout in livery service. By this means he figures that his R. F. D. service instead of being an expense will be turned into a matter of profit.

fact that the cars to be seen on the streets, particularly in Central America, are of the very latest body design. In most cities where I stopped, automobiling was almost exclusively limited to the city streets on account of the fact that there were no roads at all outside. Automobiling is, of course, delightful in many Central and South American cities where the roads are good.

"One of the very noticeable features is the fact that in Costa Rica automobiles are rented at \$3 an hour and in Panama at \$5 an hour, showing a very poor profit, undoubtedly, to the automobile owners as, of course, when the cost of transportation to these countries is taken into consideration, it seems impossible to conduct a livery business at a profit based on these prices except in cases where a constant business could be carried on."

### Foreign Trade Opportunities

**AUTOMOBILES IN GERMANY**—The Bureau of Manufactures is in receipt of a communication from a business man in Germany stating that he desires to form connections with American manufacturers of automobiles, technical articles, machinery, etc. File No. 8496.

**AUTOMOBILE AGENCY**—An American engineer, who has been connected with various manufacturing concerns in Europe for the past 15 years, would like to secure an agency for an American automobile. He will gladly furnish references. Address all correspondence to the Bureau of Manufactures, Washington, D. C., File No. 8470.

**AUTOMOBILES**—An American counsel reports that recent issues of the *Hardware Trade Journal*, published at Christopher street, Finsbury Square, London, E. C., England, contained the following inquiries: petrol air gas plants; acetylene gas plants, and suitable motor cars 5 to 15 horsepower, c. i. f. prices and illustrations with full details for South Africa. For further particulars address the publishers of the journal, giving the file number, No. 8412.

**GASOLINE MOTORS**—An American consul in Austria reports that the sales of gasoline and naphtha motors are rapidly increasing in that country and that several hundred American makes were sold last year. The consul forwarded the name of a person who wishes to be placed in communication with manufacturers of motors in the United States. File No. 8548.

**METAL POLISH AND LUBRICANTS**—A Canadian firm desires to be placed in touch with manufacturers of metal polish, graphite, and oils and greases in the United States with a view to representing them in one of the Provinces. File No. 3564.

**LUBRICATING OILS**—A business man in Austria has requested an American consul to put him in communication with manufacturers of lubricating oils. File No. 8568, Washington, D. C.

### Combine for Fire Protection

**SOUTH BEND, IND., April 22**—Plans are being worked out for the merging, in case of extreme necessity, of the fire departments of South Bend, Mishawaka, Goshen and Elkhart, cities in northern Indiana. The scheme has originated with Mayor Chester, of Elkhart, who suggests that the four cities shall be joined by well-kept macadam roadways. Motor apparatus is now in use in each of three cities, while Goshen in a short time will have similar apparatus in service. The scheme will be presented to the commissioners of the different counties, who will be asked to undertake the improvement of the necessary highways at once. Mayor Chester has been working on the scheme for some time and, after investigating all possibilities to insure its practicability, has drawn up the following proposed schedule:

	Miles.	Time.
South Bend to Goshen.....	25	37.30
South Bend to Elkhart.....	15	22.30
South Bend to Mishawaka.....	4	6.00
Mishawaka to Goshen.....	21	31.30
Mishawaka to Elkhart.....	11	16.30
Elkhart to Goshen.....	10	15.00

## Calendar of Coming Events

### What the Months Ahead Have in Store for the Sport-Loving Automobilist

#### Shows

April 15-20..... Birmingham, Ala., Automobile Show, Alabama State Fair Grounds, Birmingham Automobile Dealers' Association.  
 April 29-May 4..... Burlington, Vt., Annual Show, State Armory, Burlington Merchants Protective Association.  
 May 6-11..... Philadelphia, Show and Carnival, Belmont Race Track, Narberth, Pa., Belmont Motor Club.  
 June 17-22..... Milwaukee, Wis., Convention and First Annual Show, National Gas Engine Association.  
 June 27-29..... Detroit, Mich., Summer Meeting of the Society of Automobile Engineers.  
 July 19-20..... Winnipeg, Man., Canadian Industrial Exhibition.  
 Sept. 23-Oct. 3..... New York City, Rubber Show, Grand Central Palace.

#### Race Meets, Runs, Hill Climbs, Etc.

April 15-20..... Birmingham, Ala., Track Races, State Fair Grounds.  
 April 27..... Los Angeles, Cal., Speedway meet, Motordrome.  
 April 27..... Philadelphia, Pa., Annual Roadability Run, Quaker City Motor Club.  
 May 4..... Atlanta, Ga., Hill Climb, Atlanta Automobile and Accessory Association.  
 May 4..... Santa Monica, Cal., Annual Road Race, Motor Car Dealers' Association.  
 May 5..... Santa Monica, Cal., Motordrome Meet.  
 May 14-17..... Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club.  
 May 17-18..... Denver, Col., Track Meet, Colorado State Automobile Association.  
 May 30..... Indianapolis, Ind., Speedway, 500-mile race.  
 May 30..... Salem, N. H., Track Races, Rockingham Park.  
 June 8..... Narberth, Pa., Track Races, Quaker City Motor Club.  
 June 20..... Algonquin, Ill., Annual Hill-Climb, Chicago Motor Club.  
 July 3-5..... Belle Fourche, S. Dak., Second Annual Track Meet.  
 July 4..... Petersburg, Ind., Track Meet.  
 July 4-5..... Taylor, Tex., Track Meet, Taylor Automobile Club.  
 July 4-6..... Old Orchard, Me., Beach Meet, Old Orchard Automobile Association.  
 July 5-6..... Tacoma, Wash., Speedway Races.  
 July 15..... Milwaukee, Wis., Reliability Run, Wisconsin State Automobile Association.  
 Aug. 8-10..... Galveston, Tex., Beach Meet.  
 Aug. 23-24..... Elgin, Ill., National Stock Car Races, Chicago Motor Club.  
 Sept. 2..... Indianapolis, Ind., Track Races, Speedway.  
 Oct. 5..... Philadelphia, Pa., Annual Fairmount Park Road Race, Quaker City Motor Club.  
 Oct. 7-11..... Chicago, Ill., Reliability Run, Chicago Motor Club.  
 Nov. 6..... Shreveport, La., Track Meet, Shreveport Automobile Club.

#### Foreign

May 26..... Barcelona, Spain, Cup of Spain Road Race, Automobile Club of Catalonia.  
 May 26..... Sicily, Targa Floria.  
 June 15-23..... Vienna, Austria, International Tour, Austrian Automobile Club.  
 June 25-26..... Dieppe, France, Grand Prix de France, Automobile Club de France.

### Motor Wagons Lower Fire Rates

**INDIANAPOLIS, IND., April 22**—Mayor Shank has announced plans for a municipal parade on May 1, to celebrate the recent reduction in fire insurance rates by fire insurance companies. The reduction will amount to something more than \$100,000 annually, and was brought about by the recent addition of a large amount of motor equipment to the department. Three new fire engine houses have been erected, necessitating the employment of fifty additional firemen. The new motor apparatus includes two Packard squad wagons; a Mais ladder truck; an American-La France combination pump and hose; two American-La France combination hose and chemical wagons and a Premier touring car for the fire chief. On account of the increased facility in reaching fires promptly, the insurance companies made a decided concession in rates for the whole city.

The mayor says the parade will also be for the purpose of showing how other city departments have been improved by the installation of motor apparatus during the present administration. This has included two Packard patrol wagons and a Premier touring car for emergency calls in the police department; a Premier touring car for the board of public works; three Buick runabouts, a Penn roadster and a Reo runabout in the street cleaning, street commissioners' and asphalt repair departments; two Reo trucks in the city engineering department; an Oldsmobile ambulance in the city hospital service and a Waverly ambulance for the city dispensary.

# THE AUTOMOBILE

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## THE CLASS JOURNAL COMPANY

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C. R. McMillen, Vice-President  
W. I. Ralph, Secretary  
E. M. Corey, Treasurer  
231-241 West 39th Street, New York City

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## Announcement

*IT is a pleasure to announce that the strength of The Class Journal Company is, to be further augmented by the active participation of Horace M. Swetland in the direction of its affairs.*

*Mr. Swetland's acceptance of the presidency of this organization brings to it a publisher of wide experience in the automobile trade paper field, and so fulfills the purpose held by Messrs. I. A. Mekeel and Condé Nast when they were planning for the acquisition of the various properties now owned by the United Publishers Corporation.*

*As a member of the board of The Class Journal Company, and vice-president and secretary of the United Publishers Corporation, Mr. Nast will continue his participation in the direction of the properties, working with Mr. Swetland, who is also a member of the Board of the United Publishers Corporation, to enhance the efficiency of its publications in the service of the automobile industry.*

UNITED PUBLISHERS CORPORATION,  
Condé Nast, Vice-President and Secretary.

## The Drastic Test Will Bring Out Car's Weakness

**I**NSUFFICIENT testing of a new automobile to be placed on the market has been one of the most expensive items with which the maker has been confronted during the past decade. The preliminary test has, in scores of cases, been too short and too easy. The unceasing cry of the factory heads to get the car on the market has been responsible for this in not a few instances, whereas in other cases the shortcomings of the test have been due to lack of full appreciation of what an adequate test should consist.

Every new model should be given a drastic test. The engineer in charge should start out with the object of breaking the machine down in the test if possible. He should aim at giving the vehicle and its particular parts tests that they will rarely if ever be subjected to in ordinary use. He should satisfy himself as to the safety and reliability factors in every part of the vehicle. The engineer, the factory manager and, in short, the board of directors, should do this in justice to themselves and their stockholders, in justice to the dealers through whom they expect to market their product and in justice to the consumer who will be a buyer and user of the machine.

Nothing short of the drastic test is economical; nothing short of the drastic test can be considered good business policy; nothing short of the drastic test can ascertain the wearing qualities of the automobile and its parts, and nothing short of the drastic test can vouch for the safety factors in such vital car parts as steering mechanism, brakes and connections, wheels and front axle parts. It is the drastic test that has brought the automobile to its present position; it has been the drastic test that has made and unmade not a few automobile manufacturing concerns during the past years; it is the drastic test that will be one of the greatest determining factors in the development of the big concerns during the next five years, and it is the drastic test that the weaker machines must be put to before that measure of success will come to them which their features of design and materials used would warrant.

What is the drastic test?

Recently a leader in the electric world was commenting on what he considered the drastic test in conjunction with an improvement he was making on a certain established machine. The improvement was a small part, but during the drastic test it had been given twenty times the wear it would receive in 5 years of normal use. Even this did not satisfy. The engineer was more or less concerned because up to that time he had not been actually able to break the part up or to wear it out and he was at a loss to know what its exact life of usefulness would be. With him it was not enough to give the part the normal amount of service that might be expected; twice this service was not sufficient, three times did not suffice, the test went to twenty times and the end was not then.

Such drastic tests are cheap. They are economical. Reliable makers have found it much cheaper to test to the drastic limit than to put a car on the market prematurely and then have to make scores, hundreds and perhaps thousands of replacements. Replacements cost money,

due to the actual cost of the material in the parts and the cost of manufacture, but this is but a small fraction of the cost; the big item is the loss in prestige, the club that has been placed in the hands of the rival maker, the feeling of uncertainty that has been bred in the mind of the user and the enormous effort that must be exerted before the ill effects of the error have been wiped out and the business brought forward to the point it would have occupied had the error not been made.

There is not a manufacturer of automobiles today who can afford not to give his 1913 model the drastic test. The drastic test is needed even if but few improvements are made. If the test is not adequate the maker may find his entire output being delayed for weeks and perhaps months because of some simple little part that has not been of sufficient strength or has been poorly designed. The weak link destroys confidence in the strength of the entire chain; the weak link sets the pace for the speed of manufacture of the entire car; the weak link is the

criterion of car value by which the rival maker will gauge his selling arguments; in a word, the inadequate new part will determine the par value of the 1913 automobile when it is launched on the market.

If the drastic test cannot be given a new automobile part it is much better to continue using an older part which has withstood the test. Many a maker has found troubles engulfing him due solely to his desire for change his disposition to shelve an older design in order to add a new feature which, although correct scientifically, had not been given the acid test. More millions have been lost by haste in installing new devices than by carrying acknowledged older designs which have stood the test. Many an engineer has cost his management tens of thousands because of his effort to build up his own reputation as a designer by adopting at once new devices when other older and more conservative houses preferred to hold to the older design for six months or a year longer until the drastic test had been given to the newer part.

## Washington to Richmond

### Good Roads Enthusiasts of the Old Dominion Preparing to Build Their Portion of the Big Highway

RICHMOND, VA., April 20—Representatives of business and civic organizations will meet in the Jefferson Hotel auditorium next Friday night to take the last preliminary step in building the Richmond-Washington link of the Quebec-to-Miami International Highway. The Virginia end of the Richmond-Washington highway will receive especial attention. Over \$5,000 stock in the corporation which will build the highway has been subscribed, and at the meeting Friday night more money will be forthcoming. It is expected that actual road building will be started within the next two weeks.

While the stretch of road between Richmond and Washington, via Fredericksburg, will be the particular object aimed at by the corporation, the intention is to complete the roadway from Washington to the North Carolina line.

President H. W. Anderson will not be present, and President Belvin, of the Virginia State Automobile Association will preside.

WASHINGTON, D. C., April 22—Messrs. Charles J. Bell, Henry B. F. Macfarland and W. T. Calliber constitute a special committee appointed by the Washington Chamber of Commerce to act with the new Richmond Highway Commission, chartered in Virginia, in pushing the work of building a good road between Washington and Richmond. The Richmond corporation has an authorized capital stock of \$100,000. Henry W. Anderson, general counsel of the Virginia Railway and Power Company, is president of the corporation, which was chartered by the Virginia State Corporation Commission.

### New Mayor Gets Busy on Streets

MILWAUKEE, WIS., April 22—One of the first things accomplished by the new city administration at Milwaukee, following the ousting of the Socialists, was to heed the protests of motorists and vehicle owners against the deplorable condition of the downtown streets. A dozen gangs of expert paving men were sent out on the day following the inauguration of the new mayor, Dr. G. A. Bading, to repair holes in asphalt-paved streets, and the promise is made by the new commissioner of public works, F. G. Simmons, that permanent repairs and reconstruction of pavements will be taken up without delay.

## The River-to-River Road

### Representatives From Twelve Counties in Iowa Perfect an Organization to Carry Out Plans for the Work

DES MOINES, IOWA, April 22—The most complete and thorough good roads association ever attempted in Iowa was perfected at a meeting in Grinnell April 15, when the River-to-River Road Association was formed by representatives of nine of the twelve counties through which that road passes in its way across Iowa. Nearly 200 good roads enthusiasts from over the state were in attendance and gave an entire day and night to perfecting the new association. Officers were elected and an executive committee appointed which plans decided improvements on the road during the coming season. Representatives of the nine counties pledged \$100 each toward a fund to be used in the organization of the work of the new association so that it is assured ample financial backing. Governor B. F. Carroll of Iowa was the principal speaker before the meeting and told of the great advertising which this automobile thoroughfare across Iowa would give the state. Joe Long, of Des Moines, editor of *The Roadmaker*; Lafayette Young, business manager of the *Des Moines Capital*, and E. E. Johnston, editor of the *Iowa City Citizen*, were among the prominent Iowans who made talks.

The officers named were as follows: E. H. Spaulding, Grinnell, president; O. N. Carpenter, Iowa City, vice-president; Ed Delahoyde, treasurer, and Bert N. Mills, Des Moines, secretary.

According to a resolution adopted, the route of the road as now used will remain unchanged with the exception that the towns through which the road passes may determine what route is to be used through the town.

### Merrick Road Closed for Repairs

Automobilists having occasion to go to Long Island are advised that the Merrick Road from Fulton street, Jamaica, to a point 1,500 feet south of Central avenue south, Jamaica, has been entirely closed to traffic, and will remain so for as long a time as will permit of extensive improvements being made to the roadbed.

In order that the necessary repairs be made as rapidly and as efficiently as possible, automobilists are requested to use other routes in approaching or leaving Jamaica, as the entire elimination of traffic from this thoroughfare is imperative.

## Across Country from the Hub

### Boston Rotary Club Wants a Trans-continental Road to San Francisco, Each State to Pay Its Share

BOSTON, MASS., April 20—According to Major P. F. O'Keefe, chairman of the special committee of the Boston Rotary Club, affiliated with the National Association of Rotary Clubs of America, a transcontinental highway from Boston to San Francisco will be a reality instead of an imaginary way in the future. According to the plans under way it is to be a co-operative affair with each state through which it will pass sharing in the expense.

Major O'Keefe, who is chairman of the civic committee of the Boston Rotary Club, having the project in hand, has enlisted Governor Foss in the work. Speaking of this the Governor said: "It is only a question of time when the project for a national highway from the Atlantic to the Pacific will be taken up all over the country, especially in those sections where there is a possibility for the highway to pass, because everyone now recognizes the value to be gained from good roads just the same as the railroads developed the country through which they passed.

"The committee wanted the National Government to pay for the road, but I believe it would be fairer if the cost were apportioned half and half by the states and the government. I am heartily in favor of the movement and will do what I can to aid in making it a possibility. It should make great headway."

Speaking of the plans Major O'Keefe says: "This great highway is bound to come and it should start from Boston for many reasons. Boston roads and in fact all our state highways stand unrivaled and we now have a state road clear through to the New York state line. Therefore it is logical that the proposed highway could begin at Boston and continue through to New York. That would be a fine start, and then with New York following along with her state highways it would give it an impetus, for this would mean that there would be so many miles that would not need to be built.

"From Boston to San Francisco, over the route planned, it is about 2,800 miles. But this does not mean that there will be that number of miles of road to be constructed. Each of the different states has hundreds of first-class roadways, but to connect these up and make the stretch a continuous one is the present proposition to be considered.

"Of course, the states themselves will determine just what the route will be. I would suggest, however, that it be about as follows:

"From Boston, across Massachusetts, New York, Pennsylvania, Ohio, Indiana, Illinois, Missouri, Kansas, Colorado, Utah, Nevada, and through California to San Francisco.

"A considerable portion of this route already is in first-class condition. Hence the proposition, while a big one, has not the gigantic proportions it appears to have at first glance.

"It will require an outlay of many millions of dollars, but when proportioned off into the different states the individual burden will not be too heavy for any one state to carry."

DAVENPORT, IA., April 22—Extensive plans are being made to carry out road improvements near the tri-cities on a larger scale than last year. Markers are to be put up on the road to Blue Grass at all cross-roads and other local routes are to be marked within the next few weeks before the touring season begins. Preparations are already being made for the entertainment of the tourists on the reliability and sociability run from Denver to Chicago, May 22. Davenport has been made a night control, the run here to be made over the River-to-river road from Des Moines.

## Bill to Repeal the Wheel Tax

### District of Columbia Automobilists Secure the Introduction in Congress of Measure to Stop Iniquity

WASHINGTON, D. C., April 22—Senator Martine, of New Jersey, has introduced a bill to repeal the automobile wheel tax against which motorists of the District of Columbia are making a vigorous protest. This bill is a companion measure to one introduced in the House some time ago. Both are before the District of Columbia committees, respectively, of the two houses.

Leroy Mark, enthusiast, and motor official of Washington and the district, says that contributions to the fund being raised with which to fight in the courts the collection of the wheel tax are not coming in as fast as he had hoped. Lawyers employed by the motorists are hard at work on the briefs in the case and they hope to be able to show in the higher courts of the District that such a tax is not constitutional. In the meanwhile owners of motor cars are being forced to pay the tax to escape prosecutions.

### Flaring Tags Offend Aesthetes

MADISON, WIS., April 22—The secretary of state of Wisconsin has just settled an interesting question raised by owners who have had their cars repainted during the winter season. Requests were made for permission to repaint the license tags now carried on front and rear of all cars to the same color of the car. This permission was denied, as the new law says that all license tags used during any one year by all cars must be uniform in color. The color changes each year and the selection of a shade is left to the secretary of state. This year's tags are cardinal, with numerals in white. The combination apparently jarred the aesthetic sensibilities of some owners.

### Newark's New Traffic Ordinance

NEWARK, N. J., April 20—Under the new traffic ordinance just passed by the City Council, the automobilist who misuses his warning signal is guilty of a misdemeanor, and liable to a fine.

The ordinance is the outcome of a consistent attempt to obviate the needless noise evil and at the same time to increase the safety of the streets. The restraining measure has the sanction of all reasonable motorists as well as the general public.

### Connecting Up Lincoln Highway

LOUISVILLE, KY., April 22—The movement started by the New Albany Automobile Club for the improvement of the Charles-town road from the New Albany city limits to the Floyd County line, a distance of 5 miles, will have the effect of completing a link in the chain of improved public highways constituting the Lincoln Way from Springfield, Ill., to Lincoln's birthplace, near Hodgenville, Ky.

The Lincoln Way, which has been completed from Louisville to the Southern terminal, also has been completed from Springfield, Ill., through Indianapolis and Columbus to a point 3 miles south of Seymour, but there are numerous gaps of unfinished road on the thoroughfare between Seymour and New Albany, including 5 miles between the latter city and the Floyd County line.

Petitions are in circulation for road elections in the townships in Clark County, through which the proposed highway passes, and it is understood that in the townships in Scott and Jackson Counties, Indiana, the promoters also will get busy in an effort to complete the chain.

## Boost Federal Aid for Roads

**President Robert C. Hooper and Other A.A.A. High Lights Urge Necessity of Federal Assistance in Work**

**B**UFFALO, N. Y., April 24—"More good roads" was the subject at the first annual banquet of the Automobile Club of Buffalo at the Hotel Lafayette on Thursday evening, April 18. The banquet was a great success, 200 motorists enjoying the pithy speeches and the atmosphere of good fellowship.

Robert C. Hooper, president of the A. A. A. and of the Pennsylvania State Federation of Clubs, spoke of the need of federal aid in the building of better highways and declared that state motor associations could do much toward this end. County Engineer George C. Diehl said that New York State is leading the way in good road building. Contracts this year for 1,700 miles of improved highways will be awarded in New York State.

## Atlantic Company Announces Line

The Atlantic Vehicle Company, of Newark, N. J., has announced its line and expects to commence delivery in about 30 days. The trucks are electrics and are being built in four sizes, 1, 2, 3 1-2, and 5 tons respectively. At present the concern is occupying quarters in North Newark, but after the season is ended it is expected that a commodious factory building will be erected on a different location.

According to Arthur J. Slade, chief engineer of the company, the chief features of the line will be the even adjustment of weight, 40-inch wheels, dual brakes, liberal use of anti-friction bearings, single motor drive by silent chain to jackshaft and a gearing that is intended to give about 10 per cent. higher speed than has been regarded as standard.

## S. A. E. Will Meet at Detroit

The summer meeting of the Society of Automobile Engineers will be held June 27-29 at Detroit, with headquarters at the Hotel Pontchartrain. The following committee assignments have been announced: Entertainment: H. E. Coffin, chairman; H. W. Alden, Russell Huff. Finance: H. M. Leland, chairman; Tracy Lyon. Transportation: F. H. Floyd, chairman; E. E. Sweet, H. R. Corse. Hotels: G. W. Dunham, chairman; F. H. Berger and J. G. Vincent.

## Boom Chicago-Milwaukee Road

**MILWAUKEE, WIS., April 22**—The Wisconsin end of the proposed Chicago-Milwaukee improved highway will be officially started at a luncheon under the auspices of the Chicago-Milwaukee Good Roads Association in Milwaukee next week. The Wisconsin fund, to be raised by annual dues of \$2 from members and voluntary contributions, has grown to large proportions. John E. DeWolf, of Milwaukee, started the contribution fund with a donation of \$100 and was followed by the Thomas Cusack Sign Company, with \$200. The Kelley-Atkinson Construction Company, of Chicago, has also donated \$500 and several donations of \$100 each have been made by prominent Milwaukee business men who wish their names withheld. The Wisconsin division of the Chicago-Milwaukee Association started the work with a fund of \$1,700 left from last year's work, which was done under auspices of the Citizens' Business League of Milwaukee. Farmers living along the route are taking an active interest and the association has been requested to send split log drags without delay.

## House Agrees to Help Roads

**National Representatives of Both Parties Will Support a Proposition to Add Such Measure to Post Office Bill**

**W**ASHINGTON, D. C., April 22—Impressive evidence of popularity of legislation dealing with good roads, the latter backed by federal aid, was given when 250 members of the lower House of Congress, a good majority, representing both political parties, signed an agreement to support on the floor a proposition to add such a measure to the postoffice appropriation bill, and thus get action on it at the present session of Congress. For a time it looked as if there was no hope of favorable action, either on the Underwood joint resolution providing for a commission to take up the subject of federal aid to highways, or the Shackleford bill compensating the states for the use of their highways for star route and rural route purposes.

The good roads men got together and framed up the agreement to stand back of the Shackleford proposition, in the form of a rider to the postoffice bill, now under discussion. As a result it is believed that favorable action will be had before the present week is up, as far as the House is concerned. If so, a determined effort will be made to put such a measure through the Senate before the present session ends.

Mr. Underwood, discussing the attempt of friends of the Shackleford measure to circumvent his plan to have both houses adopt his joint resolution for good roads aid from the federal treasury, said:

"I have been a good roads man for 25 years. I am in favor of the nation spending some money on them and helping out the various states. The very name of the House Committee on postoffice and post-roads demonstrates that it was the intention of the fathers to have the federal government appropriate for good roads.

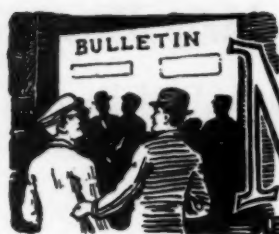
"If my resolution is passed in both houses, the joint committee can get to work at once in the office of Director Page, of the Public Roads Bureau, and investigate highway conditions, draft a bill and present it to Congress. The basis of federal appropriations thus begun can be continued indefinitely until the country is seamed with good roads. It now costs 25 cents per mile per ton to transport freight over highways in this country, and 7 mills per ton per mile over the railroads. Good roads would reduce freight highway cost to 8 or 9 cents per ton per mile, anyhow."

Mr. Underwood is much opposed to the Shackleford measure which would appropriate money directly to the states for the use of state roads for star routes and rural routes, as told in *THE AUTOMOBILE*.

**FLINT, MICH., April 22**—Fifty miles of good roads will be built this year in Genesee County, according to an agreement reached by the county road commissioners and the board of supervisors. The commissioners asked for \$100,000, or one-fifth the bond issue recently voted by the county for highway improvement purposes. Fourteen townships will benefit from the work done this year.

**WHITE CASTLE, LA., April 23**—Largely through the efforts of owners of motor cars in this city, 18 miles of splendid road has been built along the levee here. This makes one of the most picturesque runs in the whole Mississippi basin. Local motorists will stand the expense of maintaining the road in its present excellent condition.

**COLON, PANAMA, April 23**—At the offices of the Canal Commission it is announced that plans for the completion of the canal call for a military road between here and Panama. This road will be 200 feet wide and will follow the course of the canal.



# News of the Week Condensed



United States motor officials and newspaper men watching the test of the new Hartford electric self-starter

**M**ANY Pennsylvania Licenses—State officials at Harrisburg, Pa., figure that the value of automobiles owned in Pennsylvania is not far short of \$50,000,000. Thus far more than 36,000 licenses, including owners and dealers, have been issued for 1912, and, allowing \$1,500 as the average for each car, the total runs high. Although the season is well advanced as high as 200 cars a day are sometimes licensed.

**Pieper Boston Branch Manager**—George B. Pieper has been appointed manager of the Boston, Mass., branch of the Remy Electric Company.

**Dissolution of Partnership**—Notice has been given that the King Automobile Company, Franklin, Pa., has been dissolved. The business of the late firm will be continued by A. C. King.

**Company Builds Private Garage**—The Great Barrington, Mass., Electric Light Company now uses several motor vehicles and is having a building adjacent to its plant fitted up as a garage to house the machines.

**Wegner Will Distribute Vesta**—The William H. Wegner Company, Milwaukee, Wis., has been appointed distributor for Vesta lighting systems and will conduct a complete service station for users.

**Urban Made Special Representative**—Fred J. Urban has been made special representative for the Remy Electric Company in the middle West, covering the Chicago and Detroit territory, with headquarters at the Chicago branch.

**Sweet Succeeds Lovell**—W. Lovell, who has been manager of the New York Sales Company for some time, has resigned and it was announced today that the officers of the company have secured C. E. Sweet to act in the same capacity.

**Remy Establishes Service Stations**—The Remy Electric Company has established two new service stations. That in Atlanta, Ga., will be in charge of the Alexander-Seewald Company, and the Electric Sales Company will have the Savannah, Ga., station.

**Automobiles by Wireless**—Burton & Company, London, England, agents for the English style of R. C. H. car, are using the wireless to hurry their shipments. These messages come by wireless to Glace Bay, Cape Breton Island, and from there by telegraph to Detroit.

**Weinhardt with Continental**—R. A. Weinhardt, formerly mechanical engineer for the Henry Motor Car Company, Muskegon, Mich., has severed his connection with that company and is now connected with the Continental Motor Manufacturing Company, of Muskegon.

**Four Concerns Join A. T. C. A.**—The following concerns have recently been elected to membership in the Automobile Trade Credit Association: Essex Rubber Company, Trenton, N. J.; and the Hoffman Corr Manufacturing Company and W. E. Pruden Hardware Company, both of New York City.

**Licenses in Demand in Michigan**—Secretary of State Martindale, Lansing, Mich., declares that the demand for automobile licenses never before has been so heavy. Up to April 18 the fees from the sale of automobile licenses for the month amounted to \$18,000. Since the first of the year about \$40,000 has been collected from this source.

**Grand Rapids Clubhouse Progressing**—Plans have been practically completed for the new home of the Grand Rapids, Mich., Automobile Club and work on the structure will be begun soon. The contract for the excavation and foundation work for the building, which will be located at Plainfield, 7 miles north of Grand Rapids, has been let.

**Wood to Manage Elmore Branch**—R. A. Wood is the newly appointed manager of the Los Angeles branch of the Elmore Motor Car Company.

**Schuylkill County Club Organizes**—The Schuylkill County Motor Club, Pottsville, Pa., numbering 200 owners of automobiles, has organized for the season.

**Gregg is Works Manager**—W. W. Gregg has been appointed to the position of manager of works for the Hayes Manufacturing Company, Detroit, Mich.

**Wants More Club Members**—The Altoona, Pa., Motor Club has started a big campaign for an increased membership. At present the club has a membership of 85.

**Thompson Now Manager**—In the reorganization of the selling force of the Standard Motor Car Company, of San Francisco, Cal., W. H. Thompson was appointed sales manager.

**Speed Car to Stop Speeding**—The new speed mount purchased by the city of Detroit for its police department is a stock Regal roadster capable of doing between 50 and 60 miles an hour.

**Insurance Company Stock Sold**—The Maryland Motor Car Insurance Company, Baltimore, Md., has disposed of all its recently issued additional capital stock, the capitalization fully paid in being now \$300,000.

**Maxwell Wins in Argentine**—What is called the Glidden of South America was recently contested in the Argentine Republic. This tour of 8 days' duration, modeled on the reliability run which has become a classic of American touring competition, was won by a Maxwell car.

**From Haynes to Apperson**—A. A. Franklin has resigned his position as advertising manager of the Haynes Auto Company, Kokomo, Ind., to become identified with Apperson Brothers Automobile Company, of the same city.

**Lake with Perfection Spring Company**—E. F. Lake has been placed in charge of the laboratory of the Perfection Spring Company, Cleveland, O. Mr. Lake has recently been conducting a consulting metallurgical business and was formerly steel editor of *The American Machinist*.

**New Quarters for Baker Brothers**—The rapid increase of business has forced the Baker Brothers Motor Company, Buffalo, N. Y., to arrange for larger quarters. On July 1 the concern will remove to 1024-1026 Main street. The foundation for the new building is already under construction.

**Knight to Edit Paper**—News comes from the Daimler Works, at Coventry, England, that Mr. Knight has planned to edit, supervise and publish a monthly magazine devoted to the interests of the Knight engine and to be circulated all over the world where users of these engines are to be found.

**Little a Traveling Representative**—William C. Little, until recently connected with the General Motor Car Company, Philadelphia, has severed his connection with that concern to accept a position with the Detroit offices of the Lozier company in the capacity of Western traveling representative.

**Lansden Opens Chicago Branch**—The Lansden Company, Newark, N. J., has recently opened a factory branch at 1000 Michigan avenue, Chicago, Ill., for the purpose of facilitating deliveries to the Western trade. A service department will also be instituted at the branch. C. P. Jaeger will manage the branch.

**Big Carbo-Light Contract**—The Carbo-Light Company, Anderson, Ind., maker of Carbo-Light tanks for automobile use, has completed an arrangement with the Shenango Manufacturing Company, Pittsburgh, Pa., for the production of over 50,000 tanks. The Shenango company is installing special machinery to facilitate production.

**New Case Sales Building**—A six-story building will be

erected at Senate avenue and St. Clair streets, Indianapolis, Ind., by the J. I. Case Threshing Machine Company, which has outgrown its present quarters in Kentucky Avenue. The first floor of the new building is to be devoted to the sales department of the Case motor cars. The new building will cost about \$100,000.

**Club Has Good Roads Plan**—The Rochester, Minn., Automobile Club has a practical method for encouraging good roads in Olmsted County by appointing a club member as overseer for each road leading out of the city. Co-operation between the official pathmaster and the club overseer will be sought in each case. The club overseer will look up gravel pits and seek their purchase by the county commissioners as material for road work.

**Plans for Fine Building**—The largest investment ever made in the automobile business of Seattle was recently recorded when the Motor Distributing Company, Seattle, Wash., representative for the Lozier, announced its intention of spending \$80,000 for a permanent home for the Lozier in that city. The company has already purchased for \$50,000 a piece of property 70 by 130 feet and work has been started on a \$30,000 salesroom and garage.

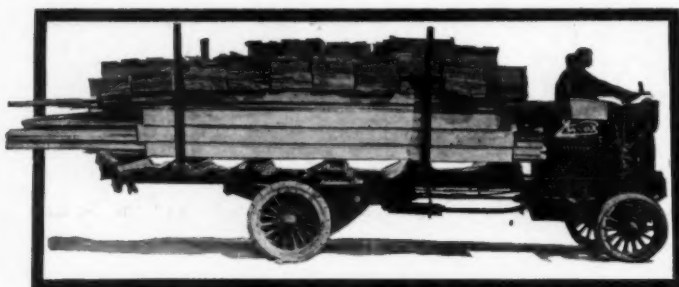
**Fisk's San Francisco Branch Opened**—The Fisk Rubber Company's new factory branch in San Francisco, Cal., has been formally opened. The building has a depth of 136 feet and an L to Pine street of 170 feet, in which is situated the service department. The entire front of the building is devoted to the offices of the company. The basement is given over to the open stock of tires. On the second floor is a large department devoted to unopened goods. On the second floor also is the vulcanizing room.

**Philadelphia's New Clubhouse Started**—Preliminary to the occupancy of the large clubhouse and garage extending from Twenty-third and Ludlow streets to Ranstead street, occupying a space of over 3-4 acre, the Automobile Club of Philadelphia, will soon remove its offices from the northwest corner of Broad and Locust streets to the new location, 2222-2224 Market street. The contract for the clubhouse and garage has already been let to Irwin & Leighton, of that city, and work will start at once. It is expected to have everything in working order by the middle of October next.

**Benson Club Plans Insurance Arrangement**—The Benson Automobile Club, which originated the \$1 road post sign for Minnesota, is planning a mutual fire and burglary insurance arrangement by which the 250 automobile owners of Swift County may have protection at much less than the 2 1-2 per cent now paid regular companies. Only \$5 a piece will be asked at the start if any assessment is made before the first loss is reported. To date there has been no loss of automobiles in the county. E. L. Thornton, member of the state association executive committee, says that the plan may extend outside the county if motorists so desire.



Flanders mail wagon in use in Detroit, Mich.



Knox 6-ton truck used for hauling lumber

**Garage for El Paso**—Jukes & Hutchings, El Paso, Tex., have let the contract for the erection of a fireproof garage and salesroom.

**Only Taxicabs in Berlin**—An English paper reports that the last horse-drawn cab has disappeared from the streets of Berlin, Germany.

**Laciar Leaves R. C. H. Corporation**—R. J. Laciar has resigned the position of district manager in the East for the R. C. H. Corporation.

**Davis Company Enlarges Shop**—The A. R. Davis Motor Company, Cleveland, O., has let the contract for a large addition to its repair shop.

**Bryant Appointed Consulting Engineer**—R. S. Bryant has been appointed consulting engineer for the Standard Welding Company, Cleveland, O.

**Motz Branch in Cleveland**—The Motz Tire & Rubber Company, Akron, O., has opened a factory branch in Cleveland, O., at 2352 Euclid avenue.

**Kelly Is General Sales Manager**—John H. Kelly has been appointed general sales manager of the Republic Rubber Company, with headquarters in Youngstown, O.

**Hough a Matheson Manager**—Elliott P. Hough has been appointed manager of the Matheson Automobile Company, Washington, D. C. He was formerly secretary of the Automobile Club, of Washington.

**M. M. A. Secures Larger Quarters**—The increasing demand for trade information has forced the Motor Mercantile Association to secure larger quarters at its present location, 43 Exchange place, New York City.

**Delaware Licenses 1,025 Cars**—The office of the secretary of state has issued over 1,025 automobile licenses and 1,089 operators' licenses since March 1. The revenue collected from this source so far amounts to over \$10,000.

**To Attend Indianapolis Race**—The National Cash Register Company, Dayton, O., has ordered 200 seats at the Indianapolis 500-mile race to be offered to as many employees of its factories as reward for excellent records in the company's service.

**Bosch Magnetos in French Tour**—Of the forty cars finishing with perfect scores in the Automobile Tour de France thirty-three, or 82.5 per cent., were equipped with Bosch magnetos. Only 66.1 per cent. of the cars which started were so equipped.

**Louisville Club Elects Officers**—At a recent meeting of the Louisville Automobile Club, Louisville, Ky., the following officers were elected: Dr. H. E. Tully, president; Col. W. B. Haldeman, first vice-president; R. G. Watkins, second vice-president; E. Strauss, treasurer; Dr. R. R. Elmore, secretary.

**Many New York Registrations**—Secretary of State Lazansky reports that 58,732 automobile owners and 30,470 chauffeurs have been licensed in New York state for the fiscal year beginning February 1. The state has received a total of \$609,073.50 in fees, \$539,054.50 from owners and \$70,019 from chauffeurs.

**Splitdorf Establishes Service Stations**—The C. F. Splitdorf Company, New York City, has established service stations, embodying spare and repair parts, supplies and shops operated by skilled workmen, in the following cities: New York, Chicago, San Francisco, Detroit, Boston, Los Angeles and Kansas City. Others are to be instituted in London, England; Paris, France; Turin, Italy; Johannesburg, Transvaal, and other cities.

**Autocar's Fine Record**—In a competition run of 1,509 miles from Washington, D. C., to Atlanta, Ga., and thence to Indianapolis, Ind., conducted by the Quartermaster's Department, United States Army, the truck entered by the Autocar Company, Ardmore, Pa., finished the route with no mechanical replacements. The contest started from Washington in February and ended in Indianapolis March 28. The most trying routes possible were followed in order to test the cars under adverse conditions.

**Henderson Plans Taking Shape**—Definite steps toward the organization of the Henderson Motor Car Company, which will manufacture a line of gasoline cars, have been taken by the opening of an office in the Board of Trade building, Indianapolis, Ind., by R. P. Henderson. Associated with Mr. Henderson will be L. Carter, of Jessup, Ga., and P. E. Rogers, of Indianapolis. Mr. Carter is president of the Henderson Motor Sales Company, which on July 1 will be merged with the Cole Motor Car Company.

## Automobile Incorporations

### AUTOMOBILES AND PARTS

ALEXANDRIA, VA.—Hercules Truck Company; capital, \$5,000 to \$100,000; to engage in the automobile business. Incorporators: S. W. Woodward, O. Ducker, E. S. Parker, B. W. Parker.

BALTIMORE, MD.—Elastic Wheel Company; capital, \$1,000,000; to manufacture and deal in automobiles and other motor vehicles.

BROOKLYN, N. Y.—Royal Auto Company; capital, \$600; to deal in automobiles. Incorporators: Harry Baumann, William Geddes, Abraham Levy.

BUFFALO, N. Y.—Oldsmobile Company of Buffalo; capital, \$10,000; to engage in the automobile business. Incorporators: W. J. Mead, R. N. Mosher, L. G. Dodge.

CHICAGO, ILL.—Byam Tire & Rim Company; capital, \$50,000; to manufacture wheel parts for automobiles. Incorporators: William A. Byam, E. C. Byam, W. A. Scott.

CLEVELAND, O.—B. & B. Manufacturing Company; capital, \$35,000; to make automobile parts and accessories. Incorporators: W. E. Smith, R. L. Bacher, W. R. Bauman, Louis C. Heimberger, Ivan J. Quick.

CLEVELAND, O.—K. D. Carburetor Company; capital, \$5,000; to manufacture carburetors. Incorporators: C. A. Riemenschneider, Henry C. Gahn, E. L. Fraser, Jr.

CLEVELAND, O.—State Auto Sales Company; capital, \$10,000; to deal in automobiles, motorcycles and supplies for same. Incorporators: Mark B. Mead, George F. Hammond, W. G. Fligle, B. S. Benjamin, R. H. Dorrance.

LONG BEACH, CAL.—California Co-operative Company; capital, \$150,000; to engage in the automobile and parts business. Incorporators: Joseph J. Mottell, W. H. Benette, Stephen H. Underwood, George A. Spicer, E. J. Teinke, M. S. Walton.

LOUISVILLE, KY.—Amrol French Air Motor Company; capital, \$50,000; to promote an automobile patent. Incorporators: Amrol French, W. M. Swearingen, Lawrence Hawkins.

NEW YORK CITY.—Auto Holding Company; capital, \$10,000; to deal in automobiles. Incorporators: Minor O. Russ, Harry Edwards, Alfred Bernstein.

NEW YORK CITY.—Dual Wheel Company; capital, \$300,000; to manufacture wheels for freight automobiles and all kinds of vehicles. Incorporators: Frederick B. Cochran, Alexander Dow, C. W. Jewell.

NORFOLK, VA.—Monticello Automobile Company; capital, \$15,000; to engage in the automobile business. Incorporators: E. L. King, E. J. Hicksford, G. F. Bailey.

OLYMPIA, WASH.—Seattle Auto & Freight Company; capital, \$10,000; to engage in the automobile business.

STAUNTON, VA.—Augusta Motor Company; capital, \$500; to deal in automobiles and accessories. Incorporators: J. H. Allen, Rufus Taylor, J. W. Childress.

TERRE HAUTE, IND.—Vigor Manufacturing Company; capital, \$25,000; to manufacture automobile parts and other mechanical devices. Incorporators: J. R. Finkelstein, R. J. Jenkes, Jr., L. M. Eyke, W. M. Lewis.

UTICA, N. Y.—Buick Sales Company; capital, \$5,000; to engage in the automobile business. Incorporators: George Beatty, Emma L. Beatty, Arthur B. Beatty.

VICTORIAN, TEX.—Victoria Motor Car Company; capital, \$5,000; to deal in automobiles, parts and accessories. Incorporators: Welder Daniel, J. T. Linebaugh.

### GARAGES AND ACCESSORIES

ALEXANDRIA, VA.—Capital Garage & Service Company, Inc.; capital, \$125,000; to conduct a garage and an automobile repair business. Incorporators: Lewis T. Cowle, Joseph R. Chapin, Eugene A. Jones.

ALBANY, N. Y.—Allen & Arnink Auto Renting Company; capital, \$5,000; to rent automobiles. Incorporators: William G. Allen, Henry Arnink, Bertha H. Arnink.

**Company to Paint Automobiles**—The Pittsburgh Auto Painting Company, Pittsburgh, Pa., has been organized and has begun operations in the Federal Motor Car Company building.

**Bayers Made a Partner**—Harry J. Bayers has become a member of the J. G. Bell firm, Boston, Mass., and the name is now changed to Bell & Bayers. The company handles batteries and supplies.

**Dorman Joins Steinbock Company**—Frank D. Dorman has resigned his position as secretary of the United States Motor Company to accept the presidency of the newly-organized Steinbock Engineering Company, Peekskill, N. Y.

**Taft Is Honorary Professional Chauffeur**—President Taft is now a member of the Professional Chauffeur Club of America, having accepted an honorary membership card from the Maryland branch of the organization.

**Sheriff Finds Automobile Necessary**—Sheriff Becker, of Erie County, has asked the Buffalo, N. Y., board of supervisors for an appropriation for the purchase of an automobile. The request was referred to the finance committee for consideration.

**Automobile Express Line in Operation**—The Auto Express Company, organized in New Haven, Conn., recently, has begun operations and now there is an established automobile express line connecting this city with Seymour, Conn.

## Automobile Incorporations

**AUGUSTA, ME.**—Thirty-five Per Cent. Automobile Supply Company; capital, \$1,000; to engage in the automobile supply business. Incorporators: E. M. Levitt, M. M. Spinney, E. L. McLean.

**BOSTON, MASS.**—United Garage Company; capital, \$4,000; to conduct a garage and automobile repair business. Incorporators: Jesse Good, James R. Jones, William F. Waters.

**BOSTON, MASS.**—New York and Boston Auto-Bus Company; capital, \$20,000; to deal in automobiles and run a bus line. Incorporators: D. O. Fillmore, C. E. S. Moir.

**BUFFALO, N. Y.**—Autoaro Pump Company; capital, \$1,000; to manufacture air pumps, etc. Incorporators: Walter W. Cohen, Louis K. Schwartz, Michael M. Cohen.

**CANTON, O.**—Stark Rubber & Novelty Company; capital, \$100,000; to manufacture rubber articles of all kinds. Incorporators: J. J. Lisbee, Walter A. Stafford, Daniel L. Holwick, Lester King, W. E. Sherer.

**CHICAGO, ILL.**—Star Motor Delivery Company; capital, \$75,000; to conduct a general trucking and delivery service. Incorporators: James E. Hauronic, F. R. Burt, Frank P. Page.

**CLEVELAND, O.**—City Auto Livery Company; capital, \$10,000; to operate a garage and livery business. Incorporators: Maurice Bernstein, Julius Pollock, Richard F. Reese, Fred A. Lazelle, Frank Havileck, Louis Herman.

**CLEVELAND, O.**—Guide Motor Lamp Company; capital, \$100,000; to manufacture automobile lamps, etc. Incorporators: Hugh J. Monson, William F. Persons, William H. Bunce, John D. Kaufmann, W. D. E. Rose.

**CLEVELAND, O.**—Universal Lubricating Company; capital, \$100,000; to manufacture lubricants of all kinds. Incorporators: Sherman W. Scofield, C. B. Emery, C. B. Arthur, T. H. Williams, Jr., Edward Draher.

**ELYRIA, O.**—Elyria Automobile Owners' Garage Company; capital, \$10,000; to conduct a garage.

**INDIANAPOLIS, IND.**—Hampton Manufacturing Company; capital, \$5,000; to manufacture accessories. Incorporators: S. B. Nussbaum, Soll Allman, William Hampton.

**MILWAUKEE, WIS.**—Retail Automobile Dealers' Association. Incorporators: Nathan Haessly, T. J. Edwards, L. F. Achsenkopf, W. C. Moore.

**NEWBURGH, N. Y.**—Newburgh Auto Top & Dust Cover Company; capital, \$500; to manufacture automobile tops and accessories. Incorporators: Charles Clapper, Robert E. Nixon, Elizabeth A. Caren.

**NEW YORK CITY.**—Houpert Machine Company; capital, \$25,000; to conduct a general machine shop, automobile repairing, etc. Incorporators: Henry J. Houpert, Nicholas W. Durnim, Stylian Caruso.

**NEW YORK CITY.**—D. McWatty & Company, Inc.; capital, \$5,000; to manufacture lubricating oils, etc. Incorporators: Duncan McWatty, Herman P. Lowe, William J. Weir.

**NEW YORK CITY.**—Motorflex Equipment Company; capital, \$150,000; to manufacture motor accessories, etc. Incorporators: Rufus L. Patterson, Sydney I. Prescott, Charles B. Goldsborough.

**NEW YORK CITY.**—Mitchell-Edmonston Garage, Inc.; capital, \$10,000; to engage in the garage business, deal in automobiles, etc. Incorporators: Liland A. Mitchell, George W. Edmonston, Joseph P. Bickerton, Jr.

**NEW YORK CITY.**—Rubber-Aer Company; capital, \$25,000; to manufacture rubber goods, automobile accessories, etc. Incorporators: Daniel B. Crane, Jr., Ernest Lavoie, Hugh M. Smith.

**NEW YORK CITY.**—Tire Core Company of America; capital, \$100,000; to manufacture tire cores, tires, rubber goods, etc. Incorporators: Russel V. Stuart, Patrick J. O'Connell, Houston P. Reader.

**RYE, N. Y.**—Motor Mail Transportation Corporation; capital, \$60,000; to transport mail and goods by automobiles. Incorporators: J. J. Cassidy, Wm. C. Prime, John L. Crawford.

**XENIA, O.**—Central Garage Company; capital, \$5,000; to operate a sales agency and garage. Incorporators: Jacob Baldner, C. K. Wolf, A. C. Messenger, F. F. McClain.

**Automobile Company in Chelsea**—The New York & Boston Auto-Bus Company was formed recently in Chelsea, Mass., to handle automobiles. Daniel O. Fillmore is president; Charles E. S. Moir, treasurer, and Lucy M. Fillmore, secretary.

**Standard Appoints New Agents**—The Standard Woven Fabric Company, Worcester, Mass., has appointed Petry-Cassidy, Inc., Philadelphia, as its agent for Pennsylvania and the South, and James G. Barclay, Buffalo, N. Y., to represent it in central and western New York.

**Omaha Clubs May Combine**—There will be a joint meeting of the members of the Omaha Motor Club and the Omaha Automobile Club Friday evening, April 26, 1912, at the Rome Hotel, Omaha, Neb., at which time the vote on the proposition to merge the two organizations will be announced.

**New York-to-Paris Winner Still Going**—The Thomas automobile which four years ago raced from New York to Paris to maintain the prestige of American-built motor cars, is again on the road. On Saturday it left Buffalo, N. Y., in charge of Neil Mohr and Elmer Miller, factory service men in the employ of the E. R. Thomas Motor Car Company. The car will be driven across New York state and into New England. The purpose of the trip is to assist the Thomas dealers in the inspection of owners' cars.

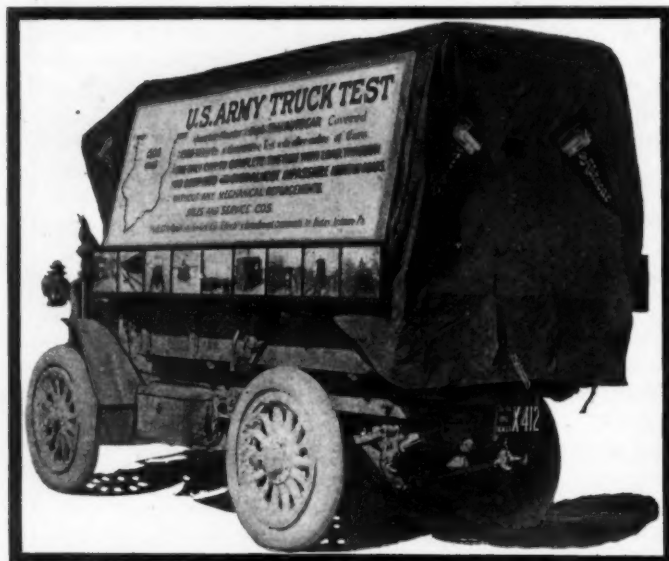
**Distinction Between Operators and Chauffeurs**—Maryland automobilists have received the following notice from Commissioner of Motor Vehicles Roe: "According to the terms of the new motor car law any person operating or running a motor vehicle, whether his own or another's, for hire or profit shall be designated a professional chauffeur, and he shall pay \$5 annually for a license. Kindly designate whether you want an operator's or a chauffeur's license. Also any person under 18 years of age cannot be granted an operator's license."

**Committee for Columbus Races**—President C. C. Janes, of the Columbus, O., Automobile Club, has named a committee to have charge of a race meet to be given by the club at the Columbus Driving Park some time in June or July. It is proposed to have as a feature a 200-mile race. The committee will arrange the details for the meet in a short time and the work of securing entries will be begun. The committee consists of Lewis M. Brown, M. J. Hanly, H. K. Lindsay, Frank Lawwell, William M. Frisbie, Herbert Mason, George Eckel, Henry Supp, Jr., and John E. McIntyre.

**Niagara Falls to Have Fire Trucks**—Mayor Keller and Fire Commissioners Isaacs and Crick, of Niagara Falls, N. Y., visited Cincinnati, O., recently inspecting the Ahrens make of automobile fire engine in use in that city. Although they were well pleased with the test of the apparatus at Cincinnati, they have decided to look over motor apparatus in other cities before purchasing engines for Niagara Falls.



Winner of New-York-to-Paris Race, now a service car



Autocar truck that completed the recent U. S. Army test

**Open Service Station**—A service station has been opened in St. Louis, Mo., by the Chase Power Wagon Company of Missouri.

**Larger Quarters for Baker**—A. M. Baker, Scranton, Pa., agent for the Hupmobile, has moved to larger quarters at 401 Adams avenue.

**Martin Heads Department**—C. W. Martin, Jr., has taken charge of the solid tire department of the Goodyear Tire & Rubber Company, Akron, O.

**Tisch Haynes Advertising Manager**—A. L. Tisch has been appointed manager of the advertising department of the Haynes Automobile Company, Kokomo, Ind.

## New Automobile Agencies

### PLEASURE CARS

Place	Car	Agent
Athens, O.	Cole	F. L. Preston
Buffalo, N. Y.	Overland	Overland-Buffalo Co.
Canton, Ill.	Cole	D. McClatchy
Charlotte, Ia.	Cole	Charlotte Auto Co.
Charlotte, N. C.	Franklin	Mecklenburg Auto Co.
Columbus, O.	Inter-State	Ira N. Thompson
Columbus, O.	King	Alec F. Bernhard
Davenport, Ia.	American	American Auto Co.
Davenport, Ia.	Metz	Schroeder & Petersen
Dayton, O.	Westcott	A. C. Appleton
Edgerton, Wis.	Cole	C. L. Culton
Houston, Tex.	Packard	Young & Dwire
Kansas City, Mo.	Reo	W. S. Hathaway
Lake City, Ill.	Cole	J. C. Rester
Los Angeles, Cal.	Thomas	A. M. Young
Louisville, Ky.	E-M-F, Flanders	Younger Auto Co.
Louisville, Ky.	Lozier, Pullman	Louisville Lozier Co.
Mexico, N. Y.	Franklin	C. H. Everts
Mt. Carmel, Ill.	Cole	B. H. Kamp Auto Co.
Muncie, Ind.	Cole	E. McMullen
Nashville, Tenn.	Marmon	B. S. Patterson
New Orleans, La.	Cole	Fairchild Auto Co.
Newport, Ky.	Franklin	Fox Automobile Co.
Oriskany Falls, N. Y.	Nyberg	H. V. Minor
Rochester, N. Y.	King	H. E. Sunderland
San Diego, Cal.	Westcott	F. Flesner
San Francisco, Cal.	Baker	Standard Motor Car Co.
Toledo, O.	Case	American Motor Sales Co.
Toledo, O.	Oldsmobile	Jamieson Bros.
Washington, D. C.	Alco	Motor Truck Corporation
Washington, D. C.	Cole	Norris & Cowis
West Jefferson, O.	Jackson	John M. Gillivan
Wilmington, N. C.	Marmon	H. L. Fennel
York, Pa.	Maxwell	A. S. Bubb

### COMMERCIAL VEHICLES

Place	Car	Agent
Boston, Mass.	Lippard-Steward	Whitney-Barney Co.
Boston, Mass.	Veerac	W. L. Russell Co.
Buffalo, N. Y.	Overland	Overland-Buffalo Co.
North Attleboro, Mass.	Sandusky	E. R. Crossley
Pittsburgh, Pa.	Lippard-Steward	Taylor Motor Car Co.
Syracuse, N. Y.	International	William H. Bissell
Washington, D. C.	Alco	Motor Truck Corporation
Washington, D. C.	Little Giant	Motor Truck Corporation

**Lynn Buys Municipal Cars**—The city of Lynn, Mass., recently purchased a Flanders car for the use of the city engineer and an E-M-F for the city electrician.

**Moves to Medford**—The Boston Motor Wagon Company has been moved from Boston to 144 Washington street, Medford, Mass., where Manager G. Frank Davenport has opened a salesroom.

**Establish Taxicab Business**—Conklin Brothers, Bucyrus, O., have established a taxicab business in Marion, O., with C. Drake in charge. Two taxis have been placed in service and more are to follow.

**Vote Money for Roads**—The Perry County, O., commissioners have voted to expend \$35,000 on improved highways during the coming summer. In addition a sum of \$6,000 will be used for repair work.

**Petitions in Bankruptcy**—Frank H. Lawwell, formerly an automobile dealer of Columbus, O., under the name of the Franklin Motor Car Company, has filed a petition in bankruptcy with liabilities of only \$1,528.

**Zimmerman General Manager**—P. E. Zimmerman, advertising manager and credit man for the Hagstrom Brothers Manufacturing Company, Lindsburg, Kan., has recently been appointed general manager of that concern.

**Linsley Joins Chase Forces**—D. R. Linsley has accepted a position as traveling representative with the Chase Motor Truck Company, Syracuse, N. Y. He will make his headquarters at Syracuse and travel through central and northern New York.

**Doctors Fight Fee Raise**—The physicians of Taunton, Mass., have taken up the cudgels against the proposed raise in fees for the use of motor cars in the Bay State. A protesting letter has been sent to the members of the Legislature from that district.

**Babcock Appointed Sales Manager**—F. A. Babcock has been appointed manager of sales for territory comprising Minnesota, North Dakota, South Dakota, Montana and northern Wisconsin. Mr. Babcock's headquarters will be in Minneapolis, Minn.

**Truck Storage Building**—W. G. Phillips has approved plans for the erection of a six-story building to be used for storing motor trucks on the plot of ground he purchased recently at West Fifty-seventh street and Tenth avenue, New York City.

**Dr. Dutton Elected President**—At the annual election of the Minnesota State Automobile Association in the Ryan Hotel, St. Paul, Minn., last week, officers were chosen as follows: President, D. C. E. Dutton; vice-presidents, Samuel Gibeau, E. L. Thornton and A. W. Strong; treasurer, J. K. Martin; secretary, G. Roy Hill.

**Leahy Buys Interest**—Edward W. Leahy, manager of the Albany Garage, Albany, N. Y., has bought a half interest in the Kingsbury carriage establishment. The firm is now the Kingsbury-Leahy Company, organized to carry on general automobile and carriage business.

**Cole Starts Company**—Captain F. W. Cole, San Francisco, Cal., has announced the organization in that city of the Pan-American Motor Company and the purchase by the company of the interests of the Kiel & Evans Company in the Moon and Michigan cars. Associated with Captain Cole in the deal is C. T. Ryland, Sonoma, Cal.

**Goodyear in Mexico City**—The Goodyear Tire & Rubber Company, Akron, O., is preparing to establish a branch establishment in Mexico City, Mexico. It has leased a three-story building at the corner of Avenida Juarez and Balderas, and the structure is being remodeled inside to meet the special requirements of the business. The officers of this Mexico branch will be J. C. MacFadyean, director general; S. F. Fuller, secretary and treasurer.

**Taylor Leaves Studebaker**—Cecil Taylor has resigned his position as consulting engineer of the Studebaker Corporation, and is working on independent lines.

**May Buy Fire Truck**—The New Albany, Ind., board of safety has under consideration the purchase of a hook-and-ladder truck.

**Lorain Receives Fire Wagons**—The fire department of Lorain, O., has received a combination chemical engine and hose wagon and a motor-driven water tower.

**Morton Represents Packard**—The Packard Motor Car Company announces C. E. Morton as the traveling representative of its sales department with headquarters at the factory. He will devote much of his time to southern territory.

**New Washington Tire Depot**—Having outgrown its quarters at 1026 Connecticut avenue, N. W., the Washington, D. C., branch of the Goodyear Tire & Rubber Company is erecting a three-story building at 1014 Fourteenth street.

**National Gas Engine Show**—The first annual National Gas Engine Show, to include everything in gas power and allied lines, will be held in The Auditorium, Milwaukee, Wis., June 17 to 22, inclusive, in connection with the convention of the National Gas Engine Association.

**Investigate Motor Fire Wagons**—G. D. Porter, Director of Public Safety, Philadelphia, has appointed a committee to investigate the merits of automobile fire apparatus, and as a result of the reports which the committee is expected to make Philadelphia may have several motor-driven combination fire trucks within the next 3 months.

**Motor Patrol Is Efficient**—The motor patrol wagon and ambulance recently purchased from the Schacht Motor Company, of Hamilton, Ont., was delivered recently and it is proving very efficient. The motor patrol is elaborately finished inside, the seats being leather cushioned. It is well ventilated and will seat ten prisoners.

**Motor Apparatus for Boston**—Mayor John F. Fitzgerald, Boston, Mass., urged by the United Improvement Associations to diminish the fire hazard, has sent to the City Council an order for an appropriation for \$50,000 for which to purchase motor fire apparatus. The council will act on it next week and undoubtedly pass it.

**Garford Agent Moves Branch**—The Milwaukee branch of Orrin R. Hughes, Marshfield, Wis., Wisconsin distributor for the Garford pleasure car and truck and the Everitt line, has been moved from 133 Thirteenth street, near Grand avenue, to more commodious quarters in the Stroh Building, Jackson and Michigan streets. C. L. Leshar is local manager.

**Automobile Owners Delinquent**—With nearly half of the automobile owners in New Albany, Ind., delinquent in the payment of their city license fee, Chief of Police Green, has issued orders to the members of the police force to arrest all persons found on the streets with automobiles on which the license tags are not attached. The lowest fine for failure to pay the license fee of \$5 a year is \$100.

**Linscott Got the Cars**—While many of the other Boston dealers were swearing about the delays in the railroads in bringing their cars to Boston, J. M. Linscott, the Reo dealer, got an option on several idle freight cars, and, after filling them with barrels, shipped them to the factory at Lansing, Mich., where they were emptied, and replaced by Reo cars. These reached the customers early in the week.

**Engine Dimensions of New Lozier Six**—In THE AUTOMOBILE for April 18 the cylinder dimensions of the 1913 Lozier six were given as 5 3-8 by 6 inches. This was an error resulting from a confusion with another Lozier motor. The bore should have been given as 4 5-8 by 5 1-2 inches. Owing to the mistake in dimensions, the horsepower of the six-cylinder car was given as 69.1. The correct horsepower, according to the S. A. E. rating, is 51.41.

## News of the Garages

**Garage to Cost \$40,000**—W. M. Applegate, Bethlehem, Pa., is planning to erect a \$40,000 garage.

**Bernheim to Build Garage**—A garage to cost \$15,000 will be built by E. Palmer Bernheim on Columbia road, Cincinnati, O.

**New Partner in City Garage**—The City Garage, Holland, Mich., will be enlarged to accommodate increasing business. Frank White has been taken into the firm, which formerly comprised C. J. Lokker and H. Prins.

**To Build Cement Garage**—Ira Gallup is to erect a garage and automobile repair and paint shop in Lowville, N. Y., in the near future. The structure will be of cement blocks and will be 50 by 65 feet.

**To Build Garage in Norwood**—The Martin Motor Car Company, Norwood, Mass., is having a large garage constructed. It will be ready for occupancy about September 1 and will be used as an adjunct to the company's Franklin garage.

**Buys Imperial Motor Car Company**—The real estate and lines of the Imperial Motor Car Company at Walnut Hills, Cincinnati, O., have become the property of Henry Luhrman. Mr. Luhrman bought the property for the Cole Motor Sales Company.

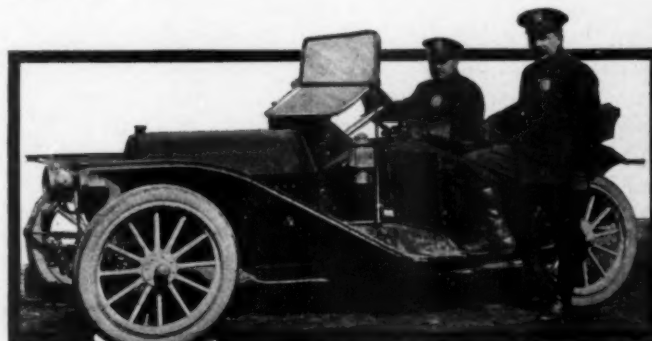
**Another Garage for New London**—C. A. Small, the Cadillac dealer, of Norwich, Conn., who recently purchased the Holt house at the corner of Main and Church streets, New London, is having the building torn down and will erect a modern garage in its place.

**Garage Partnership Dissolved**—The partnership heretofore existing between H. W. Shaver and George W. Hoch, Jr., Cannonsburg, Pa., under the firm name of the Globe Garage & Machine Company, has been dissolved by mutual consent, Mr. Hoch retiring.

**Jones Plans Repair Shop**—Ernest L. Jones, Vermontville, Mich., plans to build an up-to-date garage adjoining his present blacksmith shop. The new building will be of frame construction with a cement floor and will be used for all kinds of automobile repair work.

**Webster to Have Large Garage**—Work has been started on the erection of a garage in Webster, Mass., to be entirely of brick, concrete and steel, and which will be large enough to take care of the cars and trucks of several nearby towns.

**Fire Trucks for Columbus**—Fire Chief Lauer, Columbus, O., recently appeared before a special meeting of the city council and said that the annexation of large territories made it necessary to increase the facilities of the department but the expense would be cut to a minimum if motor apparatus was installed. Council has adopted an ordinance providing for a bond of \$50,000 to start the work of changing the department from horses to motor driven.



Regal car used by Detroit police to catch speeders

# Factory Miscellany



Bird's-eye view of the plant of the E. R. Thomas Motor Company, on the Niagara River, at Buffalo, N. Y.

**GROWTH of Thomas Plant**—The factory of the E. R. Thomas Motor Company, Buffalo, N. Y., has grown considerably since the early days of the industry. The brick structure in the foreground of the accompanying illustration originally embodied the complete works, offices included. It is now used exclusively for administration purposes. Later factory additions are built in reinforced concrete in unit construction. The plant now covers a large acreage on the Niagara River and has a capacity of 1,200 cars a year. Practically all parts of the Thomas cars are made in the factory.

**Allyn Gets Lauth-Juergens Contract**—The Allyn Engineering Company, of Cincinnati, O., has been commissioned to erect a large addition to the Lauth-Juergens Motor Car Company's plant at Fremont, O.

**Start Work on Diamond Factory Addition**—Work has been started on the six-story brick and stucco addition to the plant of the Diamond Rubber Company, Akron, O. The building will be 160 by 275 feet and will cost \$150,000.

**Ford Plant in Los Angeles**—The Ford Motor Company, Detroit, Mich., has purchased a factory site 150 by 540 feet in Los Angeles, Cal., and will erect a large assembling and repair plant at a cost of about \$200,000.

**Hess Company Plans Enlargement**—The Hess Spring & Axle Company, Cincinnati, O., has decided to make an additional extension to its Carthage plant, contract for which has already been let.

**Chase Company is Growing**—The Chase Motor Truck Company, Syracuse, N. Y., has doubled its capital stock, making it \$300,000. For some time the company has been planning extensive additions to its plant, but plans are not yet ready for announcement.

**Croxton Company to Move**—The Croxton Motor Company, Cleveland, O., manufacturer of taxicabs, has decided to move its plant to Washington, Pa. The company has obtained a 7-acre site and has let the contract for a two-

story steel and concrete building, 600 by 120 feet. It is expected to commence operations by September 1.

**Edmunds & Jones Acquire Brass Plant**—The Edmunds & Jones Manufacturing Company, Detroit, Mich., maker of automobile lamps, has acquired the plant and business of the Ireland & Matthews Manufacturing Company, manufacturer of automobile and stove brass work. No change will be made in the operation of the plant at present.

**Large Tire Output**—The automobile tire output of the Goodyear Tire & Rubber Company, Akron, O., at the present time is in the neighborhood of 4,000 tires per day, and machinery has been installed to bring this number to 5,000 per day. This number is exclusive of the output of the Canadian plant at Bowmanville.

**Niagara Falls Gets Eveland**—The United States Light & Heating Company, Niagara Falls, N. Y., has secured control of the F. F. Eveland Company, of Philadelphia, manufacturer of the Eveland electric self-starter and lighting device for automobiles. The plant is to be established in Niagara Falls. The acquisition of this firm means the employment in that city of 400 additional men.

**Cincinnati Wants Cadillac Plant**—The Cadillac Motor Car Company, of Detroit, has promised Carl Dehoney, secretary-manager of the Commercial Association, Cincinnati, O., to look over the situation in Cincinnati before deciding upon a new location. B. H. Kroger, president of the Provident Bank, has offered \$5,000 to the Cadillac Motor Car Company if the officials decide to move to Cincinnati.

**Pope-Hartford's Big Addition**—The plans for the new structure being erected by the Pope-Hartford Company, Hartford, Conn., show a floor-space of 70,000 square feet distributed over four stories and a basement. To give all the added room for working purposes the elevators, stairs and lavatories will be in a tower adjoining the structure. The output will be increased 100 per cent. according to present plans.

**Canadian Plant to Enlarge**—The Reo Motor Car Company, St. Catharines, Ont., is making preparations to enlarge its plant.

**Eureka Enlargement Under Way**—Work was started recently on the enlargement of the space of the Eureka Motor Car Company, Scranton, Pa. An addition of 65 feet is proposed.

**Dorris to Build Power Plant**—The Dorris Motor Company, St. Louis, Mo., is planning to build a power plant to cost \$7,200 at Sarah street and Laclede avenue.

**Manitowoc Foundry May Grow**—The Manitowoc Brass Foundry Company, Manitowoc, Wis., contemplates the erection of a new factory more advantageously located than the present works. A decision will be made May 1.

**Lozier Leases New Building**—The Lozier Motor Car Company, Detroit, Mich., has leased from Walden W. Shaw the two-story building in process of construction on the west side of Michigan avenue for a term of 10 years.

**Goodrich Buys Land**—The B. F. Goodrich Company, Akron, O., manufacturer of automobile tires, has purchased a large plot of land in Long Island City, N. Y., at Jackson and Honeywell avenues.

**Tire Factory for Alliance**—The H. C. Davis Manufacturing Company, Cleveland, O., is having plans prepared for an automobile tire factory, which the company intends to erect in Alliance, O.

**Preparing Plans for Plant**—The Randall-Faichney Company, Boston, Mass., manufacturer of surgical instruments and automobile accessories, is having plans prepared for a new plant at Jamaica Plain. The structure will be 260 by 60 feet and will cost \$90,000.

**Adds One-Story Building**—The Sparks-Withington Company, Jackson, Mich., maker of automobile accessories, has under construction a one-story addition of saw-tooth design 75 by 125 feet. The new building will house the annealing ovens and the testing department.

**Vanguard to Build Addition**—The Vanguard Manufacturing Company, Joliet, Ill., has increased its capital by the addition of \$25,000 of capital stock, consisting of 250 shares, par value \$100. This increase of stock was necessary for the purpose of erecting a new factory building suitable for handling the company's increasing windshield business.

**Beaver Falls Gets Plant**—The Krupp Motor Company has bought a factory site of 9 acres in College Hill, Beaver Falls, Pa. The deal closes negotiations of several months standing. The company will manufacture automobiles. It is the present intention to manufacture certain accessories and assemble cars and later on to make all parts at the plant.

**Case Factory Rumor**—It is reported that the J. I. Case Threshing Machine Company, Racine, Wis., intends to invest \$1,000,000 in the new foundry plant now being constructed near the Case car works at Lakeside, Racine. The foundry will be one of the largest in the world and will supply all departments of the Case interests.

**Lauth-Juergens Business Booming**—Work was started recently on an addition to the factory of the Lauth-Juergens Motor Car Company at Fremont, O., which, when completed, will enable the concern to double the output of the plant. The company is at present sending out four trucks a week and has more orders than it can fill.

**Duplex Decides to Stay**—The Duplex Coil Company, Fond du Lac, Wis., has reconsidered its decision to remove its entire plant and interest to Bay City, Mich., and is now practically certain of remaining in Fond du Lac. Sufficient inducements were made by the Business Men's Association to bring about the change of decision. The company manufactures electric lighting systems, coils, etc., and will make several extensions to its plant this year.

**Mitchell Forced to Use Tents**—The Mitchell-Lewis Motor Company, Racine, Wis., has been obliged to erect several large circus tents on its factory tract in order to supply room for the assembling department of the Mitchell car works. The largest of the tents is 150 by 180 feet in size and was brought from Kansas City by special express. The Mitchell plant is crowded to its utmost capacity and the rush of spring delivery calls caught the company unawares.

**New Industry for Detroit**—The Michigan Electric Welding Company, Detroit, Mich., which has recently purchased the Detroit Electric Welding Company, has consolidated the two businesses, moving the entire equipment into the plant formerly occupied by the Universal Radiator Company, recently purchased by the Michigan Electric Welding Company. The frontage of this property is 210 feet and it runs back 120 feet to the Michigan Central Eastern Terminal Switch. The plant consists of one machine shop, 50 by 84 feet; an electric welding department, 36 by 42 feet, and the gas welding department, 28 by 50 feet. New additional equipment has been installed, and with the increase of its business the company is already planning to erect a new three-story reinforced concrete building, consistent with the plants already erected in the Fairview district.

**Franklin Starts Building Addition**—The H. H. Franklin Manufacturing Company, Syracuse, N. Y., has broken ground for the first of two large buildings which will represent an investment of about \$50,000. The site is in Gifford street. It is stated by President H. H. Franklin that the building will be duplicated next year. R. J. Reidpath, Buffalo, N. Y., has prepared the plans, a local contractor doing the work. The building is to be 200 by 150 feet with 30,000 square feet of floor-space. The structure to be erected later will be alongside the one in question. Both buildings will be of steel and brick and fireproof. They will accommodate a repair shop, blacksmith shop, the first chassis testing room and a repair shop. A large increase in output will result. The company now employs 1,300 men. Some departments are working till 9 p. m. Sales thus far show 40 per cent. advance over those of last year.



Aerial perspective of the General Motors factory at Pontiac, Mich., where one- and two-ton trucks are built



**Miniature Bearing; Commercial Speedometer; Blue Book Holder; Reinforced Casing;  
Ford Spring Bumper; Acetylene Headlight Adapter; Weaver Automobile  
Twin Jack; Tire-Doh Cement and Repair Gum**

**Minimum Size F. & S. Bearing**

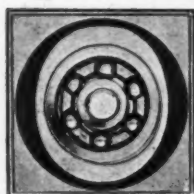


Fig. 1—F. & S. bearing

WING to the increased use of high-class bearings in most departments of machine construction the J. S. Bretz company, 250 West Fifty-fourth street, New York City, is manufacturing F. & S. bearings varying in diameter from 200 to 4 millimeters. The minimum size is shown in Fig. 1; it has six balls 1-8 inch in diameter and its load carrying capacity varies from 66 pounds at 200 revolutions to 17.2 pounds at 3,000 revolutions per minute. The inside diameter of the bearing is 4 millimeters and the outside diameter 16 millimeters. All the balls, in the large as well as in the small types, are made of chrome steel specially hardened.

**Automobile Blue Book Holder**

Tourists will be glad to know of a new accessory which makes for increased comfort on the road, more especially on a windy day, when it is difficult for the driver to keep the proper page of his Blue Book constantly before him. To provide convenience in this respect the publishers of the Blue Book, Broadway and Seventy-sixth street, New York City, have designed and are now selling the cover, Fig. 3, in which the opened book may be carried while in use. The cover consists of a leather case with a transparent celluloid front in which the Blue Book is placed as illustrated here. The top of the cover folds over the robe rail and is fixed, by snap fasteners, to the back of the cover body. If the page has to be turned over, it is merely necessary to free the cover from the robe rail, lift the top folding portion and turn the leaf over, without taking the book out of the holder. The latter is furnished in leather with or without silk lining, and in imitation leather.

**Stepney Pneumatic Tire Casing**

The Stepney Tire & Rubber Company, 1780 Broadway, New York City, manufactures the casing which is shown in Fig. 4. The general makeup of this casing is conventional, but some details which have been introduced to improve the service given by the tire deserve notice. Among them is the protection strip P which reinforces the carcass near the bead and the breaker strip which serves the same purpose in the top-tread portion of the casing. The tires are made in the clincher, Q. D. clincher or Dunlop straight side type, and are sold at moderate prices.

**Model C, Truck Spedindicator**

The Model C type of commercial-car speedometer made by the Sears-Cross company, 685 Eleventh avenue, New York City, is of the centrifugal type and in design resembles the other spedindicator models. It is constructed specially heavy to withstand the shocks sustained in use on freight automobiles. The 4-inch dial registers up to 35 miles an hour. The instrument carries a trip meter and an odometer. The trip reset is of special but simple construction and the resetting mechanism is so attached to the interior of the device as to prevent the disassembling of it by one not acquainted with the peculiarities of this design. The Sears-Cross shaft is used for driving the speedometer.

**Ford-Eclipse Automobile Bumper**

A new type of bumper for Ford cars is made under the name of Eclipse by the Emil Grossman Company, 250 West Fifty-fourth street, New York. This device is shown in side elevation in Fig. 5. It is of the spring bumper type and is attached to each of the wooden frame side members by an extension F of malleable casting M. The other end of M forms a piston P which telescopes into a tubular member T containing the bumper spring. The other end of the member T carries a ring into which the bumper crossbar is laid and the diameter



Fig. 2—Sears-Cross Model C Spedindicator. Fig. 3—Blue Book leather and celluloid holder. Fig. 4—Stepney reinforced outer casing

of which may be varied by adjusting the bolt N. The malleable casting M and the end F attached to the chassis side member are finished in black Japan while the spring-containing tube and the bumper bar are of brass.

#### Ferguson Acetylene Adapter

The Ferguson acetylene gas attachment, Figs. 6 and 7, is designed for converting oil lamps into acetylene lights. It consists of a 1-4-inch pipe and a small elbow attached to it which carries the acetylene burner. Fixed to the elbow is a circular clamp C, Fig. 7, which fits around the oil burner as seen in Fig. 6, which illustration also indicates the method of installing the adapter. In doing so a 1-4-inch hole is made in the side of the lamp casing and, after removing the oil burner the pipe of the adapter is shoved through the opening in the casing, after which the burner is again put in place and slipped into the circular clamp. Then the pipe projecting from the opening is cut to the length of 1 inch and connected by rubber tubing to the acetylene generator or tank. The complete outfit, comprising burners and pipes for three lamps, is made by C. A. Ferguson, 9 West Sixty-third street, New York City.

#### Weaver Automobile Twin Jack

The Weaver Manufacturing Company, Springfield, Ill., makes the Auto Twin Jack, Fig. 8. The idea in the construction of this jack was to build a device capable of lifting either the fore or aft half of the automobile without a great effort and of serving as a truck at the same time, so that the automobile may be moved easily even if a pair of wheels are removed. The apparatus consists of a triangular pressed-steel frame the ends of which are mounted on three caster wheels. Two of the side members are connected by a cross-member, the ends of which carry two jacks. The posts of these jacks are fitted with bevel gears engaging bevels on a cross-rod which in turn are actuated by rotating the crank on the long handle illustrated. The gear ratio between crank and jack gear is 400 to 1, so that very heavy loads are easily elevated, and, to eliminate friction, the gearnuts raising the screws revolve on ball bearings having twenty 1-4-inch hardened steel balls. The whole apparatus weighs 45 pounds and has a wheelbase of 34 inches. The combined use of two outfits may take the place of a turntable, the cost of the combination being well within the price asked for some types of the last-named device.

#### Tire-Doh Cement and Repair Gum

Recommended for use in case of all tire casing or tube repairs, the Tire-Doh outfit is offered by its makers, the Atlas Specialty Company, 59 East Adams street, Chicago, Ill. It consists of two substances, Tire-Doh cement and Tire-Doh, and an inside casing patch. Repairs are made in this manner: The wound in casing or tube is first cleaned with gasoline, then spread open and covered with some Tire-Doh cement, a solution very rich in rubber, which is smeared over it by hand. After the cement has dried, which takes about 10 minutes, Tire-Doh is kneaded between the fingers and then pressed over the place treated with the cement. This results in a permanent and effective repair, according to the maker.

It is said that the repairs made with Tire-Doh permanently prevent punctures and blowouts, and that there is never any necessity for applying a hot vulcanizer to the tube or casing to cure the Tire-Doh or the rubber treated with it. The compound no doubt comes in handy on many occasions.

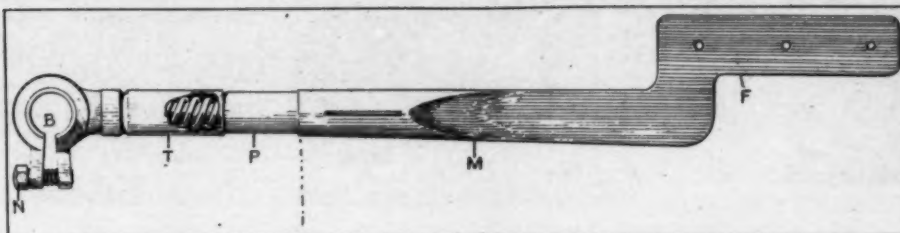


Fig. 5—Eclipse spring bumper designed for Ford cars

## New Trade Literature

THE Findeisen & Kropf Manufacturing Company, Chicago, Ill., manufacturer of the Rayfield carburetor, has issued a new monthly house organ, *The Trail Blazer*. It is an eight-page booklet of conventional makeup.

Catalogue Seventeen of the K-W Ignition Company, Cleveland, O., is out. It has sixty-four pages treating all the K-W products with great detail, and explaining their construction and operation. The description of the novel K-W lighting system is of special interest to dealers and automobilists.

The Fiske Brothers Refining Company, New York City, has published a booklet named *The Mission of Lubroline*. This trade name covers the products of the company heretofore sold as Climax Synovia, Cup Grease, Phoenixo Gear Case Lubricant and Centaur Graphite Grease.

Bowdenism or the use of Bowden wire is the subject of an eighty-four page book of the F. S. Bretz company, New York City. It describes the various products of the British manufacturer of the Bowden wire, which has enjoyed a great deal of popularity during recent years in automobile as well as aeroplane circles.

Abbott-Detroit car owners will be interested in the new instruction book brought out by the manufacturer of that car, the Abbott Motor Car Company, Detroit, Mich. This publication treats of the various operations which the owner-driver has to perform on his car from time to time, and goes into detail regarding the Abbott systems of ignition, carburetion, lubrication, valve timing, setting and grinding, miscellaneous adjustments and car washing, care and storage.

The *Henderson Bulletin* for April 1, promulgated "for the world in general, but for Cole owners and agencies in particular," is of a smart and newspaper-like appearance. Though the bulletin limits its attention exclusively to matters of business, it makes interesting reading for members of the trade as well as for automobile owners.

Number eight of *The Tattler*, published for April in the interest of the Great Western automobile, describes the new model 40 and some of the experiences of owners of this car.

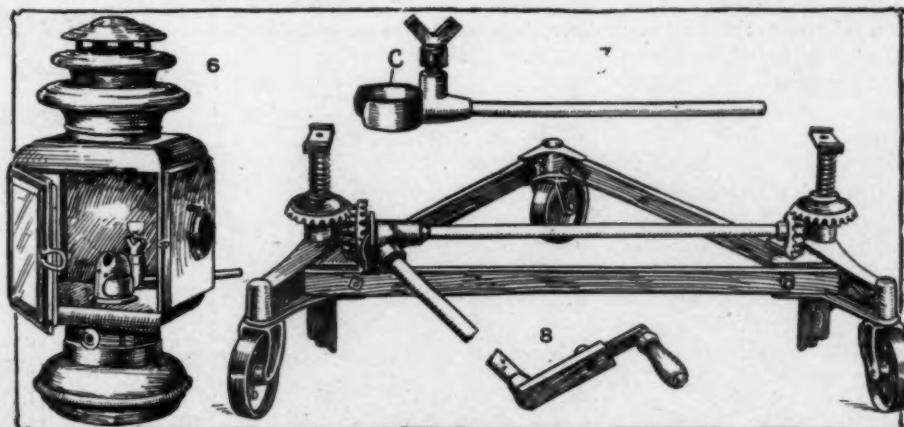


Fig. 6—Ferguson acetylene attachment in place. Fig. 7—Construction of Ferguson headlight adapter. Fig. 8—Weaver automobile twin jack



# Patents Gone to Issue

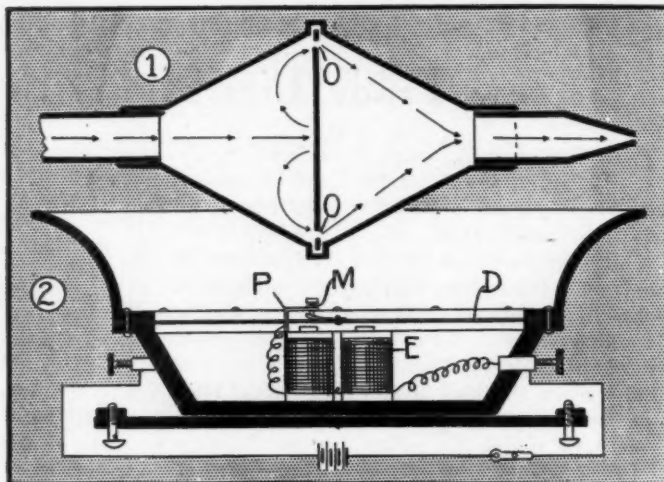


Fig. 1—Shipsberg muffler. Fig. 2—McGonigle electric horn

**MUFFLER**—Of the expansion chamber type, in which the resistance is offered by small orifices through which the exhaust passes.

This patent relates to a construction illustrated in Fig. 1, consisting of a pair of hollow cones which are held together at their bases, being there separated by a dividing wall. This wall or partition has a number of openings *O* near its periphery, but none near its center, and the exhaust entering at the narrow end of one cone must pass through these openings before leaving through the narrow end of the other cone.

No. 1,023,225—to Maris Shlosberg, Chicago, Ill., assignor of one-half to McKenzie Cleland, Chicago, Ill. Granted April 16, 1912; filed June 22, 1911.

**Electric Horn**—In which the diaphragm may be adjusted to vary the degree of its pulsations.

The electro-magnetic sounding device, Fig. 2, described in this patent comprises a sound-amplifying portion the inner surface of which is unbroken, and a vibratory diaphragm *D* located at its smaller end. The diaphragm is vibrated by the oscillation of an armature controlled by an electromagnet *E*. An angular post *P* is secured to the magnet and protrudes through the diaphragm, overhanging the outward face of the latter. A screw *M* is threaded into the post in front of the diaphragm, and its position relative to the diaphragm determines the degree to which the latter may be vibrated by the oscillating armature of the electromagnet.

No. 1,023,215—to Charles W. McGonigle, Algona, Wash., assignor of one-half to George E. Miller, Port Orchard, Wash. Granted April 16, 1912; filed August 9, 1910.

**Internal Combustion Engine**—In which the piston is provided with a flange carrying the packing rings.

The principal feature of the internal combustion motor, Fig. 3, to which this patent refers, is the construction of its piston and rings. The hollow piston is provided with an opening and with a diametrical flange at its upper end. At the outer end a hollow packing head is provided which has circumferential grooves in which packing rings are laid. At the inner end of the piston there is an annular flange adapted to fit within the diametrical flange of the piston. Bolts pass through the packing head and into the diametrical flange at the piston end, and nuts are provided on these bolts to engage the packing head.

No. 1,023,546—to Madison F. Bates, Lansing, Mich. Granted April 16, 1912; filed June 27, 1910.

**Pneumatic Tube**—A tire of peculiar cross-section.

This patent refers to a pneumatic tube, Fig. 4, having outer inflatable portions *P* which are directed toward each other and communicate with a vertical center of the tube, forming a pocket substantially T-shaped in cross-section. There are driving disks *D* at opposite sides of the tube and outer annular flanges secured to them. Between the disks is formed a pocket communicating with the T-shaped one mentioned. Between inner annular flanges *G* is formed an air pocket and the outer terminals of all the flanges are enlarged.

No. 1,023,728—to Carroll D. Galvin, Merchantville, N. J. Granted April 16, 1912; filed January 17, 1912.

**Resilient Wheel**—Comprising a main and an auxiliary tire and springs to compensate for road inequalities.

This patent relates to a construction comprising a wheel hub, spokes, and a felloe which latter carries a tire. Spaced from this tire and having side members which are adapted to slide over it, is an auxiliary tire. Both tires carry projecting flanges which are alternately disposed with respect one to the other. Each flange is formed of two spaced members, and between each pair of flanges there is a smaller member; projecting lugs are located on each side of the flanges and springs are interposed between the flanges and fit over the lugs, the curved ends of the springs being disposed around the smaller members.

No. 1,023,416—to Daniel L. Crosbie, Sacramento, Cal. Granted April 16, 1912; filed January 16, 1911.

**Change-Speed Gear**—Being of the selective type.

The gearing described in this patent comprises a driving and a driven shaft, which are not in alignment with each other. A transmission shaft is in alignment with the driving shaft and adapted to be coupled therewith; the transmission shaft and the driven shaft are constantly in mesh. A countershaft is in alignment and in constant gear with the driving shaft, and it carries gears which are fixed to it. Another set of gears is splined to the transmission shaft and adapted to be brought into engagement with those on the countershaft.

No. 1,023,553—to Paul Daimler, assignor to Daimler Motor-engesellschaft, Stuttgart, Germany. Granted April 16, 1912; filed June 13, 1911.

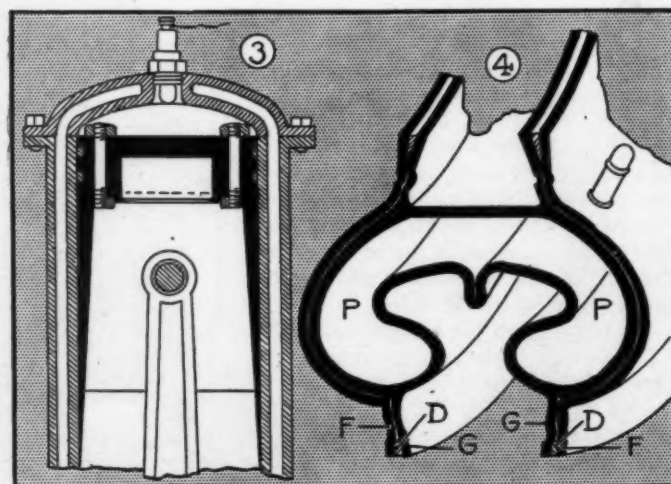


Fig. 3—Bates combustion motor. Fig. 4—Galvin pneumatic tube